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THE CHANGING AND THE UNCHANGING FACE OF MEDICINE*

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IT HAS LONG BEEN the custom, when a new ship is launched from the slipway, to break a bottle of champagne on its bows to speed it on its way. Nothing so stimulating happens to the young medical graduate when his teachers in their capacity as examiners launch him upon the difficult waters of medical practice. On the contrary, tradition decrees that he shall receive a dry baptism of words from one of his elders. Now this can be a depressing experience, for I suppose, if the truth be told, that comparatively few young men or women really believe that the old have anything useful to tell them of life and how to live it. In part, I blame the old for this, for upon such occasions as bring us together today they so often say a great deal that is neither useful nor amusing, and they forget that the young are resistant to all platitudes but their own.

Let me try, therefore, to reconcile you to my presence here today.

My submission is, then, that medicine is the oldest learned profession in the world and it is rooted in its past. Each successive generation of doctors stands, as it were, upon the shoulders of its predecessors, and the fair perspectives that are now opening before you are largely the creation of those who have gone before you. It is therefore reasonable to think that anyone who has spent a long professional life in medicine must have something to hand on—however small or modest. This is, indeed, what I should like to be able to do for you.

In the forty years of my experience as a doctor medicine has seen vast changes, but equally there are things in it that have not changed and cannot change. Thus medicine has a changing and an unchanging face, and it is as necessary to learn the meaning of the first as it is to recognize and to cherish the second.

Let me speak briefly of its changing face. When I took my first steps in medicine, the scene seemed stable enough. It was the clinical discipline that occupied most of our thoughts and our work. Morbid anatomy was a good second, followed by bacteriology. Clinical pathology was a relatively simple affair of examinations of a few body fluids. Lumbar puncture was only just coming in and was sparingly used. I recall the advent of the Wassermann test, and what an adventure its performance then was.

Vaccine therapy, an offshoot of bacteriology, was making those vast promises that it has never fulfilled, and psychiatry was a simple affair, summarily disposed of by a few lectures and demonstrations of mental cases. The psychiatric lectures dealt in a few descriptive clinical categories, and the demonstrations attracted us rather by their possibilities of humour than by any scientific merit we thought them to possess. Certainly psychiatry had not then shown signs of those cannibal tendencies to devour the whole of medicine from which we have so constantly to defend ourselves and our students today. When I was young the psychiatrist's ideas were perhaps somewhat limited, but they had the merit of consistency, a quality not highly regarded in the ampler psychiatries of today.

These brief reminiscences may seem to you to betray a lamentable state of affairs, but this is how it was some forty years ago.

On the credit side, however, the art of clinical examination was highly developed, though perhaps some of the stethoscopic artists were very fanciful, detecting one crepitation here and a rhonchus there. But they held trumps, for no

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one could contradict them. Nevertheless I cannot deny to the doctors of my youth a supreme measure of skill in the direct examination of the patient by the trained senses. We did not see in those days the ham-handed percussors and palpators we now encounter, nor did we find the doctor lingering helplessly by the bedside until the reports from the various laboratories did his thinking for him. Indeed, in those far-off days a quite ordinary doctor could diagnose lobar pneumonia without an x-ray film, or disseminated sclerosis without the ritual of a lumbar puncture, and if he had to cope with illness without all the ancillary developments behind him, he made a much better show than most of his modern counterparts could make today in a similar situation. The old doctor of the horse and buggy age had got something, namely, trained senses and sagacity.

It is, of course, the therapeutic scene that has undergone the most dramatic changes. When I graduated we had no chemotherapy, though salvarsan was just coming on the scene. The man of forty years or over who developed pneumonia was almost expected to die, and if he were addicted to alcohol he usually did die. Patients suffering from pernicious anæmia died within four years, and we could do nothing for them except to extract their teeth if they had any left. As you know, bacterial endocarditis remained a killing disease until comparatively recently. The sulpha drugs and the antibiotics were hidden in the womb of the future, and the triumphs over acute infective diseases that are a commonplace to you all today were things undreamed of.

Even surgery, if a physician dare say so, had then far less than its present scope and powers; its fatalities were not few and its proneness to fashions could, then as now, be quite staggering. But the surgeons of my youth kept no graphs on their office walls; they took on hard options without fear of spoiling their averages, and what they lacked in skill and knowledge they made up in courage.

I have not mentioned preventive medicine, but this also has changed beyond belief, so that in some parts of the world the hungry populations, now protected from devastating epidemics, tread so hard upon the world's food supplies that our successes have but created new difficulties.

Indeed, as I look back to 1910, I almost wonder what we could do at that time. A cynical teacher of mine used to tell us that the only medical disease we could hope to cure was the itch. Of course, the picture of advance where the chronic and the degenerative diseases are concerned is not even now so rosy, but then we cannot hope to abolish senescence nor to confer immortality upon the human race. How terrible it would be if we could! For many degenerative diseases of the later age periods all we have achieved is what a recent writer has called "medicated survival". Some of these diseases seem even on the increase, as the incidence of coronary thrombosis suggests.

With all these achievements, our methods have necessarily changed not only in range but in emphasis: a change that has brought both good and bad with it.

We now realize that we depend increasingly upon the application of biological and physical science in the solution of our problems. To take but a single example, we have the x-ray in the diagnosis of thoracic new growths and, by the techniques of angiography and ventriculography, we have seen great advances in both localizing and pathological diagnosis of intracranial lesions. It is unnecessary for me to go on specifying.

In short we may almost be said, in a military metaphor, to have "a force of all arms" at our disposal in the recognition, study and treatment of illness. What, indeed, is now the proper rôle of clinical observation? May we now relegate it to the realm of the obsolete? Is its pursuit a mere archaism? Some seem to think so, but this is, in my submission, an unbalanced and uneducated view. I suggest to you that in the practice of medicine there is a hierarchy of methods at the disposal of the doctor and that, as in all hierarchies, there is one which comes first and is indispensable.

For the good clinician, the taking of the history and the direct examination of the patient take primacy; without these and the guidance they give the doctor, medicine becomes a chaos of activities and techniques devoid of plan.

A good general with such a force of all arms as I have spoken of does not shoot off everything he possesses at the first engagement of battle. He chooses his weapons and the moment when he shall employ them; in other words, he uses judgment. For the clinician judgment depends upon the primary clinical assessment. How often do we see the clinician shooting off all he has before he has really seen his target or put his hands upon his patient and, in the process, what

discomforts, hazards and pains he may inflict upon him.

I have heard of a hospital in which every patient admitted to its wards has twelve specified laboratory tests carried out on him but, said my informant, "of course, some of our patients don't live long enough to have all twelve done". This isn't scientific medicine, and it certainly isn't humane medicine. It is the barren triumph of technique over reason. I wonder how many acres of x-ray film are unnecessarily exposed, and how many man-hours on the part of radiologist and radiographer wasted every day in our hospitals by doctors who will not use trained hands, eye and ears.

Perhaps I may be allowed to cite a passage from one of the Psalms that is so closely applicable to some young doctors nowadays: "Eyes have they, and see not. They have ears, and hear not; noses have they, and smell not. They have hands and they handle not." But their pens cease not from writing requisitions to the laboratories to do this and that for them.

I am not recommending a deliberate sticking to old-fashioned methods, but reminding you that the more resources we have, and the more complex they are, the greater are the demands upon our clinical skill. These resources are calls upon judgment and not substitutes for it. Do not, therefore, scorn clinical examination; learn it sufficiently to get from it all it holds, and gain in it the confidence it merits. No piece of apparatus can do your thinking for you, and even an experiment calls for intellectual weapons in its interpretation though it does not always get them.

I come last to the unchanging element in medicine that lifts it above the level of the natural sciences. namely, the prudence that should inform and direct its activities. Prudence, the practical wisdom of the ancients, belongs to the moral category and requires that we should always keep in view the highest good of our patients, and this is not necessarily what our patients ask for or what ministers most obviously to their immediate material or physical gratifications.

Now, plainly, what we conceive to be the highest good depends upon our view of the human person, of his dignity, of what is owing to him, and of what we believe his destiny to be. If we think of man as of the beasts that perish, but merely a beast with more complex neural circuits in his cerebral hemispheres, then I cannot see how we are to escape a deadening materialism of outlook. A biologist has indeed recently proposed that ultimately we shall obtain our most satisfactory assessment of man in terms of an elaborate mathematical and statistical terminology: I venture to say that man will never be subsumed in the symbols of mathematics and statistics. Indeed, you will discover as you grow older that it often is the cloistered scientist who knows least about men who is apt to pontificate most loudly and confidently about Man. Beware of him when he assures you that he knows all the answers about us, for too often he is one of those Peter Pans of science that every generation produces: a clever boy who hasn't grown up.

Thomas Linacre, who was physician to King Henry the Eighth and founder of the Royal College of Physicians of London in the sixteenth century, also founded what is the oldest medical lectureship in England and he expressed the wish in his Deed of Gift that the lectures should "redound to the glory of God, the relief of the fallen and the increase of the realm". What better ideal of the vocation of the doctor can we put before ourselves 300 years later? If we accept it, then we accept with it moral responsibilities, and we look upon man as having here no abiding city but a destiny beyond this world. This view must colour our attitude towards our patients, and will help us to consider their welfare first and individually, and to remember that they are men and women like ourselves, with their hopes, fears, aspiration, griefs and joys, their ideals and their human frailties. All this is to say that the Hippocratic Oath is still binding on us, and that it is one of the aspects of the unchanging face of medicine.

This aspect of medicine which demands prudence I shall call humanism, not the secular humanism of the ancients, but a humanism infused with the Christian ethic. Without this, medicine must degenerate into a chaos of techniques devoid of moral purpose.

On this occasion I feel sure that I do not touch upon these high issues in vain. And with these words, I wish that you may find in the profession of medicine the good life that it can be, and that I indeed with gratitude have found it.

Science has been seriously retarded by the study of what is not worth knowing, and of what is not knowable.
—Goethe.

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FUNGOUS INFECTIONS OF THE SKIN, HAIR AND NAILS

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IN 1947 THE CENTRAL LABORATORY of the Ontario Department of Health established a separate section devoted to medical mycology. An important part of the work is confined to the examination and culture of skin scrapings, hair and nail clippings for pathogenic fungi. The work had been carried on before this, but to a limited degree. With the growing interest in pathogenic fungi and a greater awareness of the importance of considering fungous infections in differential diagnosis of skin diseases, we believe a report of the isolations of the pathogenic fungi made at the provincial laboratory in Toronto would be of value to physicians. In addition to knowing which pathogenic fungi occur in a given geographic area, it is also important to know the commonest body sites infected, the types of mycotic lesions and the important differences between mycotic and non-mycotic lesions. Once the fungus has been isolated, the physician should be prepared to inform the patient if the response to the treatment is likely to be slow or rapid.

Specimens of hair, skin scrapings and clippings of diseased nail tissue are received at the laboratory in special fungus outfits. Each outfit consists of a sterile folded black paper and a data sheet in an addressed manila envelope. These are supplied to physicians on request and are a part of the free service offered by the laboratory. The physician should collect as large a specimen as possible so that a thorough examination may be made. When collecting a specimen from a skin lesion, one should bear in mind that the fungus is growing toward the healthy tissue, so the scrapings should be collected from just within the border of the lesion.

The tops of vesicles are also satisfactory, especially if they are on the feet. Clippings of diseased nails may be collected with a pair of small scissors and forceps or the nail may be scraped with a scalpel. Specimens of hair should be collected from within the affected area. If some of the hairs are broken the stubs should be pulled out with tweezers; infected hair offers little resistance to pulling out. In some infections the hairs break off very close to the scalp and it is important to collect some of these stumps if possible. In other infections the hair may not fracture, but the infected hairs have a lifeless and lustreless appearance. Some of the scales that are usually present should also be collected. Before taking any kind of specimen, one should wash the area first with 70% alcohol and use sterile instruments. If the clinician is fortunate in having an ultra-violet light with a Wood's filter (sodium barium silicate containing approximately 9% nickel oxide) he will be able to pick out Microsporum infected hairs by their characteristic greenish fluorescence. Trichophyton infected hairs may not show any fluorescence or the colour may range from light blue to a mauve. From our experience it always appears advisable to collect hair from the diseased area whatever the colour or absence of colour of the hair under the Wood's light.

When the specimen is received at the laboratory some of it is mounted in sodium hydroxide for direct examination and the rest is treated with 70% alcohol for five minutes. This kills most of the bacteria, but does not harm the fungus. Microscopic examination of skin scrapings will reveal the fungi that attack the very superficial layers or the more deeply invading dermatophytes. The former include *Nocardia minutissima,* the cause of erythrasma, and *Malassezia furfur,* the cause of tinea versicolor. To establish erythrasma a special mount, using methylene blue, is made and it is necessary to use the oil immersion lens to study the characteristics of the fungus. All scrapings from intertriginous areas especially the axillæ and genito-crural area are examined for *Nocadia minutissima* (erythrasma) and infections by this fungus have been determined as not uncommon in the Toronto district. The regular sodium hydroxide mount is used to establish tinea versicolour or an infection by one of the dermatophytes. This last procedure establishes merely the presence of mycelium and gives no information as to the species.

For purposes of prognosis it is important to know the species, which is determined by culturing. Nail clippings or scrapings are frequently planted on Littman oxgall agar which inhibits most bacteria, but permits the fungi to grow. Examination of infected hairs gives more information as to the type of fungus and frequently suggests a particular medium such as beef heart infusion tryptose thiamine agar which contains

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antibiotics to keep down bacterial growth. All specimens of hair from the axillæ and pubic regions are checked for trichomycosis. This is a non-symptomatic infection in which the fungus, *Nocardia tenuis*, produces concretions on the hair shaft. These concretions may be yellow, red or black in colour. We have never received a specimen of hair with black concretions, but the yellow and red varieties occur frequently. The skin is not attacked. All specimens of hair, except those infected with *Nocardia tenuis*, are checked under the Wood's light. During the past year we have had a considerable number of specimens of hair from *Microsporum* infections that did not fluoresce. Microscopic examination showed the fungus to be chiefly within the hair shaft. The specimen of hair should be large enough to permit the direct examination of a number of hairs and also to permit the culture of about a dozen others. Only by growing the fungus and studying its characteristics can the species be established. This is of great value in determining the type of treatment.

Cultures are checked every seven days and the positives which have grown sufficiently to be identified are reported. The remainder of the cultures are incubated another week and then reported. Occasionally a pathogen is grown that requires considerable study which may delay a report. A preliminary report is sent as soon as it is established that the isolation is a pathogen. The clinical data supplied by the physician are of great help to the laboratory worker in doing his work conscientiously.

In Table I the various pathogenic fungi are arranged vertically and the sites of the body whence the cultures were taken are arranged horizontally. In discussing this Table, we will deal with the various body sites, the types of fungi which affect these sites and in some cases mention other diseases which simulate fungous infections. Treatment will be discussed briefly.

Feet.—The fungus which causes tinea pedis most commonly in Ontario is *Trichophyton mentagrophytes*, known to many by the synonym *Trichophyton gypseum*. The Trichophyton group accounts for 248 out of 269 positive cultures.

TABLE I.

ISOLATIONS FROM SKIN, HAIR AND NAILS

	Feet	*Hands*	*Genito-crural*	*Axilla*	*Trunk*	*Nails*	*Miscellan-enous**	*Beard, face*	*Scalp hair*	*Axillary hair*	*Total number*
Trichophyton mentagrophytes	184	7	2		10	9	30	5	6		253
rubrum	62	16	12	1	15	91	17				214
sulfureum	1	1			1	2	1	1	3		10
tonsurans	1		1						3		5
sabouraudi					2		1		3		6
faviforme		1				1	1	11	6		20
schoenleini								1	6		7
violaceum					1		1		3		5
Epidermophyton floccosum	13	2	18	1	7	1	8				50
Microsporum audouini		1			4		5	1	252		263
canis					7		5	3	51		66
gypseum					2		1		1		4
Candida albicans	8	10	19	1	7	26	5				76
Nocardia minutissima			21								21
tenuis										9	9
Malassezia furfur					21						21
Positive	269	38	73	3	77	130	75	22	334	9	1030
Total number	1482	875	198	50	630	587	604	125	929	9	5489
% positve	18.2	4.3	36.9	6	12.2	22.1	12.4	17.6	36	100	18.7

*Scrapings but source not known.

Thus the term "epidermophytosis" used to denote all fungous infections of the feet is a gross misnomer. This has been aided and abetted by the patent medicine vendors and unfortunately accepted by many of the medical profession. The commonest manifestations of fungous infection produced by *Trichophyton mentagrophytes* are maceration and fissuring in the webs of the toes, particularly between the fourth and fifth, and a vesicular eruption on the toes and soles of the feet. Frequently, in severe infections, a secondary pyogenic infection occurs. Fungous infections rarely affect the dorsa of the feet and almost never originate there. Lesions starting on the dorsa of the feet are usually due to a pyogenic infection and should not be treated with fungicides.

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Treatment of fungous infections of the feet cannot be discussed exhaustively in this paper. Briefly, the best fungicides are borated talcum powder and propionic and undecylenic acids and their salts. In acutely inflamed cases it is essential to use cold compresses, mild foot baths and drying lotions such as calamine.

Next in importance in foot infections is *Trichophyton rubrum*. This fungus is known to some physicians as *Trichophyton purpureum*. Infections by this fungus may cause the same manifestations as *T. mentagrophytes* but usually produce dull, red, scaly, thickened areas on the plantar surfaces and sides of the toes and soles. This infection is extremely difficult to eradicate. It is often unilateral, one foot being grossly affected and the other foot clear. Treatment is very satisfactory but probably Castellani's paint and Whitfield's ointment are as efficacious as any. This infection is common in the United States and appears to be affecting Canadians more frequently as time goes on.

Epidermophyton floccosum occasionally is the cause of a fungous infection of the feet and produces lesions between the toes but rarely causes vesicles and almost never infects nails. For these reasons it is more easily eliminated by the fungicides suggested for *T. mentagrophytes*.

Candida albicans. This organism is an uncommon one on the feet. It may produce chronic paronychia of one or more toes and it occasionally produces lesions between the toes or on the soles which are red and macerated. It is best treated by the dyes, brilliant green or gentian violet in a strength of 1 or 2% in 50% alcohol.

Hands.—From Table I it will be seen that in 875 specimens submitted from the hands, there were twenty-five positive cultures of Trichophyton, two of Epidermophyton, one Microsporum and ten Candida. If we except *T. rubrum* and Candida, it is extremely rare to find a fungus as a cause of hand eruptions. This diagnosis is made most glibly and frequently by those who know little or nothing about it. If the physicians who make the clinical diagnosis of fungous infection of the hands so frequently would take the trouble to try to corroborate their diagnosis by cultural means, they would soon learn their mistake.

T. rubrum was the most frequently isolated pathogen from hand scrapings. It may attack the palmar skin of one or more fingers and is manifested as a thickened, reddish, hyperkeratotic, pruritic eruption with slight scaling. It is extremely difficult to eradicate and sometimes resists all types of treatment. The fungicides mentioned for the treatment of foot infections may be tried.

Eruptions of the hands which may simulate fungous infection and are usually diagnosed as such are: (a) Contact dermatitis either in industry or in housewives. (b) Dyshidrotic eczema or pompholyx. (c) Nummular eczema.

Genito-crural.—Fungous infection of this area, known as tinea cruris or "Dhobie's itch," is seen chiefly in the male and usually the adult male. It is caused by a variety of pathogens as is shown in Table I but the classical type described as Dhobie Itch is caused by *Epidermophyton floccosum*. This fungus is also known by the synonym *Epidermophyton inguinale*. The common manifestation of this disease is a ringed patch on the thigh lateral to the scrotum, active at the edge and clearing in the centre. *Candida albicans* and *Nocardia minutissima* may be present in moist intertriginous lesions in these areas but do not cause tinea cruris. *Candida albicans* was one of the most frequently isolated pathogens from the genito-crural area. It may be present in moist red areas in folds especially in infants or stout adults. *Nocardia minutissima*, the cause of erythrasma, was found twenty-one times. All of the positive scrapings were from the genito-crural area although this fungus may infect other intertriginous areas such as the axilla. Erythrasma has been considered by many to be chiefly a tropical infection and is rarely considered in differential diagnosis. As a result of laboratory examination of scrapings, this infection was found to be present in a number of patients after they had received a great variety of treatments for twenty to thirty years for other possible causes.

Other diseases which are usually mistaken for tinea cruris are psoriasis, seborrhœic dermatitis and intertrigo. The best treatment of tinea cruris is 10% sulphur ointment. It should be thoroughly rubbed into the skin at night and calamine lotion applied during the day. It is much superior to Whitfield's ointment and the ointments containing propionic and undecylenic acids and their salts in this region. Seven to ten days treatment will usually eradicate the infection.

Axilla.—Fungous infections in this region are uncommon and only three positive cultures were obtained in fifty specimens submitted. Psoriasis,

seborrhœic dermatitis, intertrigo and contact dermatitis from deodorants are much more common in the axilla. *Nocardia tenuis* is not a pathogen of the skin but merely produces yellow, red or black concretions in the axillary hair. Thorough cleanliness will eradicate it.

Trunk.—On examining Table I it is seen that almost all the pathogens listed may produce lesions called tinea circinata on the glabrous skin. *T. mentagrophytes* and *T. rubrum* predominate. The former may be of animal origin and produce inflamed ringed lesions on any portion of the body. *T. rubrum* may produce large persistent circinate patches with less inflammatory reaction.

Epidermophyton floccosum also produces ringed lesions with central clearing on the trunk as does the *Microsporum* group. The latter may be associated in children with ringworm of the scalp and this disease should be suspected in every child who has tinea circinata, particularly if the lesions are on the face, neck and shoulders. Tinea circinata is most often confused with pityriasis rosea, particularly if there are multiple ring-worm-like lesions.

The best treatment of tinea circinata caused by any of the above is 10% sulphur ointment. This should be rubbed in gently but thoroughly twice daily and a week's treatment will usually suffice.

Malassezia furfur produces the clinical condition known as tinea versicolor. Brownish macules are seen on the trunk and in the axilla and groin and these macules have a fine branny scale. The fungus can best be eliminated by sulphur topically applied either as sulphur ointment or as a 20% aqueous solution of sodium thiosulphate. It is never serious but sometimes very persistent.

Nails.—Trichophyton rubrum is the usual cause of involvement of the nail plate. As shown in Table I, it was isolated 91 times from nail tissue whereas all of the other dermatophytes were isolated a total of thirteen times. One or more nails on fingers and toes may be involved, but rarely all the nails on hands or feet. The nail plate becomes opaque, lustreless, brittle and thickened and may be yellowish or brownish. The surface becomes rough and grooved and the free edge broken. Paronychiæ are rarely associated with this type of infection. The skin of the fingers, toes, soles and heels may also be involved as previously described. Once this disease is diagnosed the prognosis is almost hopeless. Fungicides are rarely of benefit and avulsion of the nail is only occasionally of value.

T. mentagrophytes produces the same clinical picture in the nail and is almost as difficult to eradicate.

The two cultures of *Trichophyton sulfureum* from infected nails are of interest since this fungus is not often isolated from nail tissue. *T. sulfureum* belongs to the crateriform group, which also includes *T. tonsurans* and *T. Sabouraudi.* These species are most frequently isolated from infected skin and hair. As is shown in Table I, *T. sulfureum* is isolated more frequently than any of the other species in this group.

Candida albicans ranks next to *T. rubrum* as a cause of nail infection. It affects the soft tissues at the base of the nail, producing chronic paronychia and at the edges of the nail where the plate becomes yellow and eroded. The central portion of the nail plate is unaffected except for transverse grooves. This infection is more easily eliminated and the dyes, brilliant green and gentian violet, are of definite value.

Other diseases which may simulate fungous infections of the nails are psoriasis, eczema, congenital abnormalities, contact dermatitis, chronic pyogenic infections and syphilis.

Beard and face.—Ringworm may appear on the face as it does on the trunk and is a frequent accompaniment of ringworm of the scalp. It is seen chiefly in children and is usually caused by *Microsporum Audouini* or *canis.* It takes the familiar ringed form hence is called tinea circinata. It is usually easily treated and cured with sulphur ointment as outlined in treatment of the trunk.

Ringworm of the beard in the adult male is usually caused by *Trichophyton faviforme* and is frequently contracted from infected cattle or horses, hence is commonest in farmers and stockbreeders. It may produce an extremely acute inflammatory reaction with great swelling, redness, pain and tenderness, and simulate blastomycosis or multiple abscesses. It may be extremely persistent and difficult to cure. Secondary infection is common and should be treated by the sulfonamides by mouth or the antibiotics parenterally or orally. Infected hairs should be manually epilated and the beard treated with frequent potassium permanganate compresses 1:5,000. It may result in scarring.

T. mentagrophytes produces a similar clinical picture, but there may not be as much swelling. Treatment is the same.

Scalp (Tinea capitis).—In Ontario, scalp ringworm is almost entirely confined to children and is extremely uncommon after puberty. Children infected before puberty tend to lose their infection spontaneously when they mature.

Referring to Table I it is seen that the chief cause of ringworm of the scalp is *Microsporum Audouini* with *Microsporum canis* much less prevalent. *All* epidemics of scalp ringworm are caused by *Microsporum Audouini* which is transmitted directly from human to human or through contaminated articles such as brushes, combs, barbers' clippers, caps or hats and the backs of movie seats. The isolations of *M. Audouini* reported in Table I do not reflect a true picture of the incidence of scalp infections by this fungus of children in Ontario. Every year during the past five years, infections by this fungus reached epidemic proportions in at least one residential area in Ontario. Some centres have been successful in eradicating the infection, but there are other centres where the infection has persisted. The number of infections could be numbered in the thousands.

Clinically, ringworm of the scalp caused by *M. Audouini* is manifested by partial baldness of a patchy type and is often very insignificant. In addition there may be scaling of the scalp, short, broken hairs in the affected area and inflammatory change varying from nil to severe.

It is commoner in boys than girls and is usually seen in the school age group. One or more members of the family may be affected.

The diagnosis depends upon: (1) Finding a suspicious lesion in the scalp. (2) The demonstration of fluorescence of the hairs under Wood's light. (3) The demonstration of fungus elements in the hairs by microscopic examination. (4) The identification of the fungus by culture.

It cannot be stressed too strongly that children who have a widespread ringworm infection of their scalp caused by *M. Audouini* may show very little on clinical examination under ordinary light. The mother usually notices slight hair loss and there may also be slight scaling. Frequently these cases are seen by the family physician who assures the parent that there is no trouble. They then report to a school or hospital clinic equipped with a Wood's light where it is seen immediately that there is a widespread infection. The parents are bewildered and annoyed and not without reason. If any physician who has not a Wood's light available is confronted by a child with a possible ringworm of the scalp, he should refer that child to a school, private physician or hospital clinic equipped with such a light for diagnosis. In any event about a dozen short, broken hairs from the suspected area should be removed and submitted to the laboratory of the Ontario Department of Health. Sometimes hair infected with *M. Audouini* does not show any fluorescence, so it is always desirable to have a laboratory examination and culture.

If *M. Audouini* is reported, then the child should be referred to a competent radiologist or dermatologist for x-ray epilation of the scalp hair. Treatment of this fungus with fungicides is most unsatisfactory and while it is sometimes effective, it usually results in absence of the child from school for four to six months. The average length of time away from school, *i.e.*, until all infected hairs have disappeared after x-ray epilation, is thirty-five days.

Microsporum canis is usually transmitted from kittens or puppies to children and can cause ringworm in the scalp indistinguishable from that caused by *M. Audouini.* However, there is sometimes more inflammatory reaction. It produces a green fluorescence under the Wood's light. After culturing, it is worth while trying the effect of various fungicides to eradicate the infection. If there is little inflammatory reaction, the child's head may have to be epilated as the results with fungicides are so slow. The best fungicides are tincture of iodine, strong sulphur ointment and ointments containing propionic or undecylenic acids and their salts and salicylanilide phemeral.

Any of the fungi in the Trichophyton group may cause ringworm of the scalp. These pathogens are usually acquired from infected animals such as horses and cows.

The degree of inflammation produced by a *Trichophyton* infection of the scalp varies from slight to very severe. In the former it may simulate a mild *Microsporum* infection. In the more severe inflammatory form there is sometimes seen a type known as kerion. Although kerion may occur with *Microsporum* infections, it is more common with *Trichophyton.* It occurs regularly in infections by *T. mentagrophytes (gypseum)* and *T. faviforme.*

In this type of infection there are seen single or multiple areas on the scalp varying in size from one to four inches in diameter, characterized by tenderness, extreme redness and swelling and a boggy feeling on palpation. There may be numerous pustules surrounding the infected hairs. Due to the great swelling, many of the hairs are almost buried. The appearance suggests a superficial abscess or blastomycosis and sometimes ill-advised efforts are made to incise the areas widely. The superficial lymph glands in the draining area are enlarged and tender and the child usually has a fever ranging from 101 to 104° F. and is quite ill.

Infected hairs in the area may be withdrawn easily without pain to the patient and should be submitted to the laboratory for mycological examination.

Treatment of the patient consists of bed rest, good nursing care with adequate fluids and food. Sulfonamides should be administered to control the secondary pyogenic infections.

It is essential to epilate manually all the infected hairs in the area and this should be done a few at a time. Locally, warm compresses of potassium permanganate solution 1:5,000 are moderately effective. The acute inflammation may take weeks to subside and may result in baldness in the area. X-ray epilation should never be done in the presence of acute inflammation.

SUMMARY

1. The Central Laboratory of the Ontario Department of Health established a section devoted to mycology in 1947.

2. Since that time 5,489 specimens of skin, hair and nails have been received.

3. The laboratory procedures are briefly outlined.

4. The necessity for knowing the species of fungus is stressed to aid in determining the treatment of choice.

5. The clinical manifestations of fungous infections in the various body sites are discussed briefly together with an outline of differential diagnosis and treatment.

COMPLICATIONS OF GASTRO-INTESTINAL INTUBATION*

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WITH THE INTRODUCTION of gastro-intestinal intubation varied complications have ensued. These can be classed as mechanical or physiological. We are only concerned with the former in this report. Nasogastric tubes are reported to have caused nasal septal abscesses and erosions;[16] sinusitis; otitis media; laryngeal œdema and ulceration;[1, 3, 9] œsophageal stricture,[4] ulceration, bleeding from varices,[8, 19] and perforation; and gastric ulceration or perforation.[7, 19] When the long intestinal tube was introduced, 14 years ago, the list of complications was lengthened; first, by the essential complexity of the tube and, second, by the extension of alimentary tract intubated. Referable to the tube were: knotting,[15] distension and bursting from the bag, inability to withdraw the tube from the ileocæcal valve,[14] and even mercury appendicitis.[12] Intestinal effects have included obstruction, perforation,[8, 11] intussusception,[2, 10] and pressure necrosis.

We are reporting an interesting group of mishaps associated with the use of the long intestinal tube.

CASE 1

L.N., a 49-year-old man with a history of gastro-enterostomy 25 years previously, and a recent gastric hæmorrhage, was admitted to the Royal Victoria Hospital, November 13, 1950.

Examination revealed normal temperature, pulse, and blood pressure. There was a well healed right paramedian scar and slight epigastric tenderness. Laboratory findings were: Hæmoglobin, 96%; RBC, 4,700,000; WBC, 9,000; gastric analysis with free acid to 84 units and total acid to 96 units. Barium studies pre-admission revealed an active duodenal ulcer and nonpatency of the gastro-enterostomy.

On November 15, after the usual preparation, a subtotal gastrectomy (of retro-colic Hofmeister-Finsterer type) was performed without incident. The postoperative course was uneventful for the first 48 hours and until the withdrawal of the naso-gastric tube. Following this, the patient was unable to retain any feedings and was maintained by intravenous fluids. When repeated attempts at feeding, over a 2 week period, proved futile barium was given, December 2, and complete retention in the stomach stump demonstrated. In an attempt to meet the patient's caloric requirements, a Cantor tube weighted with 5 c.c. of mercury was passed. After being retained for 36 hours in the stomach, the tube passed on into the small bowel and tube feeding was commenced. Despite the intestinal tube, gastro-duodenal vomitus necessitated the use of a naso-gastric tube.

The temperature and abdominal findings had remained unremarkable until December 12 (27 days postopera-

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tive). No local tenderness was evident and the temperature was compatible with the moderate dehydration present. On December 12, the patient was acutely ill with abdominal pain and rigidity and a fever of 103°. Peritonitis was diagnosed but operation deferred owing to the gravity of his condition. Wangensteen suction to the Cantor tube, liberal use of penicillin and streptomycin, and careful fluid and electrolyte control were the treatment measures. Gradual deterioration in his condition occurred and operation was performed as a measure of desperation on December 15.

At operation a small amount of seropurulent fluid was immediately apparent. The anastomotic site appeared and felt normal. The Cantor tube was palpated well down into the ileum. Handling of the small bowel resulted in the release of large quantities of foul greenish fluid which appeared to be pocketed in three principal sites: among the loops of small bowel, in the right paracolic region, and in the pelvis. The bowel itself was matted

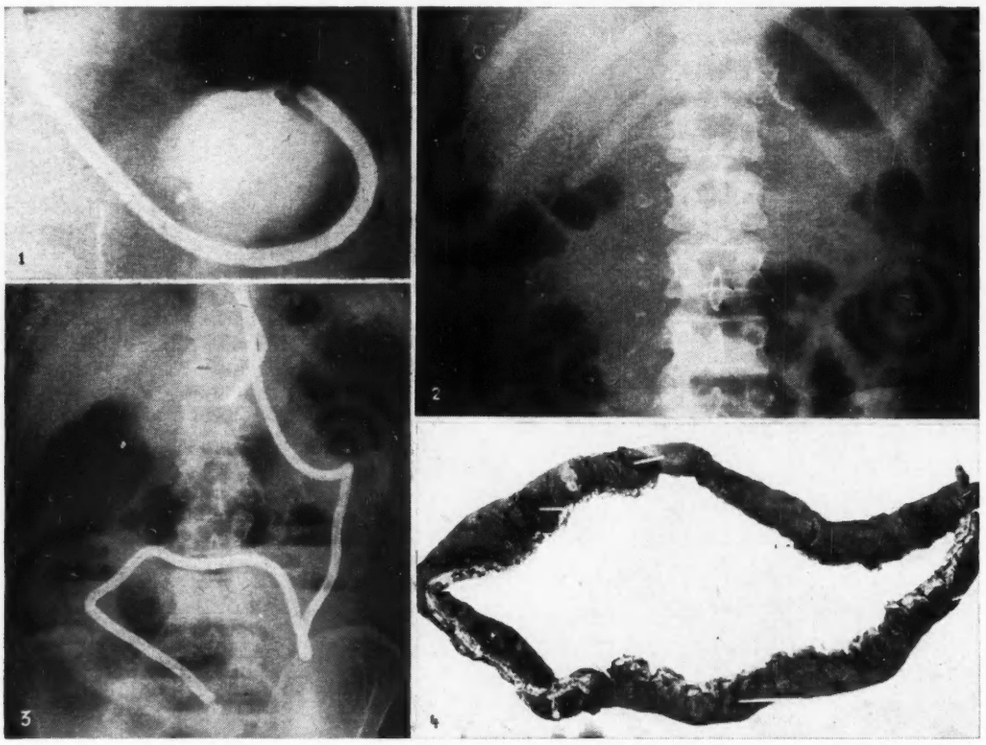

Fig. 1.—Barium retention in the stomach stump 2½ weeks after gastrectomy, December 3, 1950. Fig. 3.—Upright x-ray of the abdomen showing multiple fluid levels. The naso-gastric and Cantor tubes are shown in position, December 8. Fig. 2.—Two weeks after the final operation. Bowel distension has disappeared; the patient convalescing uneventfully, December 28. Fig. 4.—Resected portion of ileum. Several of the large perforations are apparent.

together with fibrinous material whose removal revealed some 20 perforations in the bowel wall and an equal number of necrotic patches on the verge of rupture. There were confined to the jejunum and upper ileum, that is, the portion of the bowel intubated. The lesions paralleled the long axis of the bowel at a point midway between the mesentery and free border. About half the perforations were closed with interrupted silk sutures but the central affected portion was so riddled with holes up to 2 cm. in size that resection of a 5 foot segment was necessary. Adequate drainage was assured and the abdomen closed. No long tube was used postoperatively.

From the time of operation, progressive improvement occurred. The fever gradually subsided to normal by January 2nd. Satisfactory bowel movement began December 18. The oral intake was increased to adequate amounts by December 22. Two fæcal fistulæ at drainage points closed spontaneously. Antibiotics were freely administered to combat the peritonitis. The patient was discharged home, January 20, in good condition.

CASE 2

F.T., a 26 year old man was readmitted February 18, 1947, to the Montreal General Hospital two weeks after operation for a perforated appendix. Signs and symptoms of a non-strangulating obstruction had appeared the day of admission: rectal examination revealed a right pelvic mass. X-rays showed a typical small bowel ladder pattern. A Miller-Abbott tube was passed on February 29. Despite supportive and decompression therapy, there was no improvement in the patient's condition. The Miller-Abbott tube had, meanwhile, progressed to the lower ileum by February 27. Operation was performed the next day through a right paramedian incision; and the distended balloon of the tube was the first structure encountered. It was lying free in the peritoneal cavity, having ruptured necrotic ileum in relation to a pelvic abscess. Resection of the affected ileum was performed and abdominal closure with drainage effected. The postoperative course was stormy at first; but subsided with chemotherapy and antibiotics permitting his discharge on the 22nd postoperative day.

CASE 3

D.C. This middle-aged man had many admissions for hypopituitarism and hypoglycæmic crises. These were attributed to a chromophobe adenoma of the pituitary. He was admitted to the Royal Victoria Hospital, October 24, 1946 complaining of an acute febrile illness associated with severe left hip pain. Fatigue and drowsiness were evident. X-rays revealed a non-specific inflammation of the left iliac bone. Treatment comprised intravenous cortin and penicillin.

Associated with the above complaints were marked anorexia and abdominal distension. Fluid and caloric requirements were met intravenously for the first week. October 31, the distension having progressed, a Miller-Abbott tube was passed. Suction was alternated with milk-shake feedings to a volume of 2,400 c.c. daily.

On November 11, the patient began vomiting and a tentative effort to withdraw the Miller-Abbott tube was unsuccessful. x-rays, which had shown a marked gaseous distension, were repeated. These showed the tube in the upper jejunum; and efforts to withdraw it resulted in a dilated loop of bowel being swung toward the midline, but without release of the tube.

With the diagnosis of intestinal obstruction, laparotomy was performed November 15, 1946. A large sausage-like mass was demonstrated in the jejunum, about a foot below the ligament of Treitz.

Aspiration was unsuccessful; and the bowel was incised over the mass. The bag of the Miller-Abbott was found inflated with a large quantity of milk-shake. This was evacuated and the tip of the tube with the attached bag removed. Superficial necrosis of the jejunal mucosa was the only apparent local effect. The jejunal incision and abdominal wall were closed; the Miller-Abbott tube removed through the nose; and the patient returned to the ward.

Postoperative recovery was uneventful.

CASE 4

Mid-abdominal discomfort for 1 month, cramps for 4 days, and progressive vomiting for 2 days, had led to the admission of this 65 year-old man to the Montreal General Hospital on March 11, 1949. There had also been some change in the bowel habits and slight weight loss. Visible peristalsis was apparent on examination. Slight tenderness was confined to the right lower quadrant, and was unassociated with rebound aggravation. X-rays showed dilated bowel loops, presumed to be jejunum, and a non-strangulating obstruction diagnosed.

A Harris tube was introduced on admission and supportive intravenous therapy given. Marked improvement occurred. A barium enema on March 15 did not demonstrate any colon disease; and suction was discontinued two days later. Recurrence of symptoms, March 22, led to replacement of the Harris tube. Its passage into the jejunum was confirmed by x-ray. Barium introduced through the tube was also unsuccessful in demonstrating the site of obstruction. On March 25, the proximal end of the tube was swallowed while it was detached for irrigation. During the next 5 days, the passage of the proximal end of the tube into the lower small bowel and, finally, in the cæcum was followed. Here the tube remained coiled. A repeat barium study was done April 1, and demonstrated a constriction of the ascending colon, just distal to the coiled tube. On April 6, a right hemicolectomy was performed. The specimen showed a constricting adenocarcinoma of the ascending colon with the coiled Harris tube neatly trapped, proximal to it.

Further progress in hospital was uncomplicated; the patient was discharged home on the 16th postoperative day.

COMMENT

Perforation of various portions of the gastro-intestinal tract associated with intubation have been reported. Two additional case reports are presented. Cases have been recorded in which the tip of a Miller-Abbott tube has perforated the bowel at the site of disease. We believe that Case 1 is a previously unreported, although not a previously unknown complication.[6] Here, there were multiple perforations of the bowel along the length of the Cantor tube. Extensive resection in addition to multiple repair was necessary. One can speculate as to the etiology of this process. It would seem that a long intestinal tube having reached its furthest possible point of descent (here, presumably, an inflammatory mass) is relatively fixed proximally and distally. It is thus a potential source of trauma to an active bowel. Perforation is a not unlikely sequel if the vitality of this bowel be already compromised in its nutrition by adjacent inflammation.

Cases 2 and 4 are examples of unusual and preventable complications of the long intestinal tube. Transposition of the connections of the double lumen tube can, and has, resulted in balloon distension and intestinal obstruction. Loss of the proximal end of the tube may, or may not, result in difficulties. Where there is distal obstruction (as in Case 4) or failure to pass the ileo-cæcal valve laparotomy, to retrieve the tube, will be necessary.

CONCLUSIONS

1. Gastro-intestinal intubation carries the risk of complications of which the attending surgeon must be aware. Those referable to the use of the long intestinal tube are considered in this report.

2. Two examples of preventable complications (inadvertent distension of the balloon and loss of the proximal end of the tube) are presented.

3. Another case of ileal perforation by the Miller-Abbott tube is added to the few previously reported.

4. A case of multiple perforation of the small bowel associated with the use of the Cantor tube, a new complication, is discussed.

We wish to thank Dr. Campbell Gardner and Dr. S. J. Martin, of the Montreal General Hospital, for permission to use their cases.

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NEWER AGENTS AND METHODS FOR OBSTETRICAL ANÆSTHESIA*

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PAIN AS AN INESCAPABLE accompaniment of labour and delivery has been considered inevitable from the most ancient time. The ideal agent for its relief has not been found. Furthermore, the advisability of complete analgesia and amnesia during labour has been seriously questioned.

From the very first, efforts to relieve pain of childbirth met with severe opposition. To Sir James Y. Simpson belongs the credit for the introduction of modern anæsthesia in obstetrical practice. He first used ether in January, 1847. In the U.S.A. the use of anæsthesia in obstetrics was delayed until April, 1847. Following ether came the use of chloroform and N_2O. After the gradual acceptance of anæsthesia to relieve pain during the second stage of labour trial was made of agents to produce analgesia and amnesia during the first stage of labour. The first agents used were hyoscine and morphine, introduced by von Steinbuchel of Graz in 1902. This was followed by the "battle of the barbiturates", starting about 1928. In the last 25 years numerous agents and methods have been introduced in an attempt to achieve painless childbirth.

During recent years, however, the reality of the need for relief by pharmacological agents of the pains of labour has been questioned, particularly by Read.[1] His viewpoint is that childbirth in the absence of maternal and fetal physical abnormalities, is a normal physiological process, which in common with other physiological phenomena is normally free of pain. Civilization has produced conditions which engender anxiety and fear concerning labour. These emotions result in muscular tension, particularly of the cervix and perineum, so that the progress of labour is impeded and causes pain. By proper instruction during pregnancy and encouragement and direction during parturition, fear and anxiety can be allayed to such an extent that relaxation of the cervix and perineum make possible painless labour. Many obstetricians dissent vigorously from these theses, so anæsthetists are still free to discuss the anæsthetic agents best suited for the obstetrical patient.

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Agents used in obstetrical anæsthesia must produce three things:

1. Amnesia: First Stage of labour.
2. Analgesia: First stage of labour.
3. Anæsthesia: Second stage.

Objectives aimed at are:

1. For the mother: Relief of pain and freedom from fear with some degree of amnesia for the period of labour, followed by a safe and painless delivery.
2. For the infant: Modification of the course of labour in such a way as to promote more rapid progress and to reduce trauma to the child.
3. For the obstetrician: More deliberate management of labour, since the pressure to interfere because of maternal fatigue and fetal distress is lessened, with optimum conditions of relaxation and pain relief for delivery.

The ideal agent or combination of agents should accomplish these objectives and also add no hazards to mother and infant, should not interfere with the mechanism of labour and should be free from unpleasant side effects and sequelæ. It is clear that the ideal agent has not been found. All pharmacological agents which produce analgesia and anæsthesia are capable of depressing the vital functions, particularly respiration, circulation and the mechanism of labour. The effects upon respiration are likely to be particularly evident in the infant.

SOME GENERAL CONSIDERATIONS

Drugs given to the mother contribute to the respiratory failure of the baby, but do not necessarily do so. Some additional factor is concerned which is extremely difficult to assess; commonly this is asphyxia of the brain stem due to the stress of vaginal delivery. Accordingly, drugs are given at such time that the baby will not be born when the drug effect is greatest. Commonly analgesia is managed by the obstetrician but the anæsthetist can contribute to the prophylaxis of respiratory failure by avoiding any material oxygen lack related to anæsthesia. Oxygen lack may lead to intrauterine asphyxia and thence to premature respiratory effort and to respiratory failure. Oxygen transfer to the fetus is dependent on a tension gradient towards the fetus. Eastman has calculated that the tension available to the umbilical vein blood in the placenta is 50 mm. Hg. or less. The maternal arterial oxygen tension is 90 mm. Hg. but this may be lowered to below 50 mm. in less than half a minute by inhalation of pure nitrous oxide. In normal healthy pregnancy at term, there is a reserve of oxygen in combination with hæmoglobin in the placenta amounting to about 40 c.c. of oxygen. This constitutes a safety factor enabling the fetus to withstand temporary interruptions in the oxygen

transfer. The safety factor is reduced by placental separation, by placental disease as in pre-eclamptic toxæmia, and possibly by prolonged labour.

Equally important is the maintenance of maternal blood pressure. If the maternal systolic pressure drops below 80 mm. Hg. it is possible that blood ceases to flow through the uterine muscle to the placenta against the resistance of the tone of the uterus. Therefore, in spinal anæsthesia, it is important to see that the blood pressure does not fall below 100 mm. Hg. systolic.

As previously stated, in the first stage of labour we are concerned with drugs that produce amnesia and analgesia. In this group, I believe that Demerol[2, 3] has contributed most in producing safe and satisfactory sedation. Demerol (also known as pethidine, or meperidine), is the ethyl ester of 1 methyl 4 phenyl piperidine 4 carbonylic acid and was synthesized in 1939 by Eisler and Schumann. The initial dose is considered to be 100 mgm. and can be repeated every 2 to 3 hours up to a maximum of 400 mgm. Although fetal respiration is not depressed as much as with morphine, it is unwise to give it within three hours of delivery. If combined with scopolamine the results are more effective. Scopolamine has the power to induce amnesia without losing consciousness. Evidently scopolamine does not directly affect the activity of the uterus during labour, or exert any significant effect upon the child, but does cause excitement and restlessness and therefore is most effective combined with demerol.

Turning to the second and third stages of the obstetrical patient's course, we find considerable controversy as to whether inhalation anæsthesia or some form of regional anæsthesia should be used. There are good arguments on both sides. In favour of general anæsthesia is that these methods are flexible and controllable as to depth and duration of anæsthesia and thus can be lightened by cessation of administration. The agents are eliminated through the lungs and do not have to be detoxified. The chief disadvantage is the danger of aspiration of regurgitated gastric contents; according to Hingson,[4] this is one of the commonest causes of maternal death as a result of anæsthesia. The other disadvantage is the respiratory depression produced in the infant.

All inhalation agents have been used and the literature describes each both favourably and unfavourably. I would like to mention trilene only as the most recent addition to the armamentarium of the anæsthetist.

Trichlorethylene or trilene was first introduced into clinical practice in Great Britain by Hewer in 1941. It is less volatile than ether, has a pleasant odour and is non-inflammable. Helliwell and Hutton[5] have done extensive work on animals and have shown that trilene readily passes the placental barrier, but has little effect on uterine activity or on fetal circulation.

Trilene must be vaporized by some gas—air, O_2 and N_2O and O_2 have been used. Many attachments have been designed; to name only a few—the Steel, Freedman, Cyprane, McGill. All are based on similar principles and have special arrangements to fit individual needs or circumstances. To relieve the pains of first stage, trilene can be used with air, as self-administration by the patient. In the second stage, the most satisfactory results are obtained when trilene is given with N_2O and O_2 from a gas machine by the semi-closed technique, with an ether or vinethene vaporizer. Wick vaporizers should never be used, as it is easy to obtain too high a concentration with this method. Tachypnœa is considered a sign of too deep anæsthesia. Arrhythmias occur in 17% of cases. Trilene is a safe, pleasant and effective agent. There is very little vomiting on recovery. One can give an adequate supply of O_2; the equipment and technique are simple and can be used by relatively inexperienced personnel.

As opposed to general anæsthesia for deliveries, there is the field of regional methods, including local anæsthesia by pudendal block and perineal infiltration, paravertebral block of 12th thoracic segment, caudal, and spinal anæsthesia. The advent of various regional methods for obstetrics has opened up a new field in the psychology of childbirth. One of the greatest physiological factors as far as the mother is concerned, is to hear her baby's first cry. These techniques have returned to womanhood the heritage which she had to sacrifice through the use of various forms of amnesia and anæsthesia. The patient of high intelligence who has absolute confidence in her obstetrician and who goes through labour relieved of pain but conscious of her surroundings has in her mind an indelible impression of what is actually the concept of modern obstetrics. The judicious use of methods of regional nerve block for pain relief, in obstetrics, aside from protecting the baby, will

bring about an emancipation in the mother in travail through salvage of blood and the control of fear and pain.

In the use of regional anæsthesia the innervation of the uterus must be kept in mind. Sensory fibres to the cervix and lower uterine segments are derived from the sacral and lower lumbar spinal nerves, those of the upper part and the fundus from the upper lumbar and 12th thoracic segments. Cleland[6] established this by a series of investigations in animals. The motor innervation of the uterus is still a matter of question, but extends probably from the 3rd thoracic to the second lumbar segments. Anæsthesia above the eighth dorsal segment definitely reduces the force of uterine contractions.

Consideration of these pain pathways makes it clear that any technique must block the segments from the 11th thoracic to the fifth sacral. It is important that the effect of the anæsthetic agent be confined to these segments in order that the progress of labour may not be interrupted by blocking of the higher segments in which a larger part of the motor innervation originates. In caudal anæsthesia this is achieved by depositing the anæsthetic agent, commonly metycaine or procaine, in the peridural space by way of the caudal canal in sufficient volume to affect the segments to the desired level. In spinal techniques the extension cephalad is limited by exploiting the force of gravity by the use of solutions made hyperbaric with glucose, such as pontocaine or nupercaine 1-400—popularized by Adriani—or using a very dilute solution such as procaine 1%.

In caudal anæsthesia there is a tendency to technical difficulties due to obesity or abnormal bony structure. Even when the needle is properly placed there is still 7.2% of failure to obtain anæsthesia. If the subarachnoid space is punctured the procedure must be abandoned. These difficulties are less with spinal anæsthesia.

The majority of infants breathe and cry as soon as the head is delivered. A three year survey at the University of Washington Medical School showed that the infant mortality from labours protected by conduction anæsthesia was consistently at least 100% lower than in the non-conduction group, which included every type of inhalation or intravenous anæsthesia, twilight sleep and mothers delivered without anæsthesia.

The contractibility of the upper part of the uterus is preserved and therefore there is less bleeding. However, conduction anæsthesia is not adequate for manœuvres requiring uterine relaxation such as versions. Patients must be told when to bear down. There is an increase in operative deliveries, associated with incomplete rotation of the head. Some statistics give the use of outlet forceps at 78.3%.

When using spinal anæsthesia it must be remembered that the pregnant woman differs in her reaction to spinal: (1) the level ascends much higher, therefore the dosage should be cut to 1/2 or 1/3. (2) Blood pressure is more likely to fall. (3) Respiration is more easily depressed if anæsthesia ascends very high.

The great disadvantage of spinal anæsthesia is the development of post spinal headache in from 5 to 20% of patients. It is generally accepted now that the majority of cases of headache following spinal anæsthesia are the result of leakage of spinal fluid through the dural puncture with subsequent changes in cerebrospinal fluid dynamics, loss of cushioning effect on the brain, and resulting pain owing to pressure or traction, or both, on sensitive brain structures and large vessels.

If the rate of fluid loss exceeds the rate of formation post-spinal headache may be expected to appear. The various methods taken to prevent or cure such headaches are based on this fact; such as the use of smaller needles (as fine as 27 gauge being recommended); care in performing the tap by inserting the beveled needle parallel to the dural fibres and keeping the patient flat. These are all measures which have been used to decrease the rate of leakage. Adequate hydration of the patient is necessary to provide a store of "free water" on which the choroid plexus can draw to form new spinal fluid to replace that lost by leakage. If the rate of formation of fluid can be stimulated to the point where it equals the loss, no true post-spinal headache will appear. In the obstetrical patient it is also suggested that the sudden release of intra-abdominal pressure, augmented by the vasomotor paralysis of spinal anæsthesia, results in pooling of blood in the splanchnic vessels. With this in mind, applying of a tight abdominal binder has been used to prevent development of headache.

In conclusion, the ideal relief of pain for obstetrical patients would be provided by agents and techniques which would provide complete relief for the mother throughout labour, preserve her co-operation and the whole mechanism of

"bearing-down" in the second stage, preserve uterine contractibility and uterine tone and moreover have no depressing effect on the infant. Needless to say, we still have not found the ideal agent, but this paper attempts to show that Demerol, Trilene, and some form of regional block are among our newer and safer methods of providing safety for mother and child. When an operation is required, the anæsthetist must administer an anæsthetic and hence take some risk, even though it is a small one. On the other hand, women who are to give birth to babies are essentially normal individuals going through a physiological process, and there is no need to take risks.

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MANAGEMENT OF ACNE VULGARIS IN PRIVATE PRACTICE

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THE NUMBER OF PATIENTS with acne vulgaris seen in dermatological practice has increased during the last decade. This is probably due to the fact that the well-groomed adolescent, particularly the advertisement- and glamour-conscious girl of today, demands speedy therapeutic action. She refuses to resign herself to the disfiguring appearance of this condition. Unhappiness, neurotic trends and depressions may occur if treatment proves disappointing.

Bloch[1] in his series of over 4,000 patients, pointed out that more than 90% of adolescents of both sexes show some acneform lesions at some time; and that 22% of girls and 57% of boys showed more severe types of acne.

Some progress in the recognition of etiological factors has been made, and a great many papers have been published on this subject in the last ten years. One may summarize the present state of knowledge by stating that acne vulgaris is caused by a stimulation of the sebaceous glands, with subsequent comedo formation and tissue reaction due to accumulation of sebaceous material, and to secondary infection.

Hamilton[2] demonstrated that testosterone stimulates the sebaceous apparatus and causes acneform lesions if given in high dosage, and a similar reaction was demonstrated with adrenal cortical hormones. Disturbed balance of androgenic and œstrogenic hormones was thought to be of etiological importance.[3] While hormonal activation has been given considerable attention of late, it is generally recognized that there are many other stimulating factors.

Stokes[4] was the first to point out this multiplicity of pathogenic stimuli, including metabolic, dietary and emotional factors; this latter contention has been substantiated by the work of Wittkower.[5] The rôle, and the importance of secondary infection, has also been emphasized and investigated during the past few years.[6]

The difficulties in obtaining accurate results from a clinical study are obvious. The case material is almost always selected. The patients who are most resistant to therapy, or the neurotics, tend to seek help from the specialist. A thorough follow-up, and the use of case holding techniques, as used in control of venereal disease, is impossible both in hospital and private clientele; strict dietary regimens are not enforceable and simultaneous use of external, and dietary and internal therapeutic methods is often unavoidable.

The following study of 313 patients is not without these shortcomings.

MATERIAL

Three hundred and twenty-four patients have been seen in private practice by two of the authors in the five year period from 1944 to 1949. Eleven cases had to be eliminated because of lack of information in the case history. One hundred and nineteen additional cases have been seen during the years 1950 and 1951, and the treatment results have been tabulated. Most of the patients have had some previous treatment by the family physician, or by other dermatologists, and about 20% had previous roentgen therapy. Almost all the patients had used some

proprietary lotions and have made some dietary experiments previously.

This table shows the age and sex distribution of the patients. The prevalence of female patients is obviously due to the fact that women are more conscious of a cosmetic disability. The relative large number of women over 20 years is probably due to the same motivation, and to the fact that this age group may be financially better off, and more prone to visit a specialist's office.

This table lists the basal metabolic rate in 149 acne patients. Over 50% of the patients examined showed a B.M.R. of less than –10. It is realized that numerous errors are inherent in this method and a biased selection of patients may also account for some of the low readings, because greater efforts to obtain permission to perform the test may have been made in those patients in whom suggestive clinical evidence of hypothyroidism was noted.

The test was repeated in many instances after several months and in all cases in whom a technical error was suspected. Smith and collaborators[7] have recently published a series of 353 B.M.R. determinations in acne patients and our results are almost identical with those obtained in their series. Smith stated that there was no relationship between the severity of the disease and the degree of negativity of the B.M.R. and we concur with that opinion on basis of our material.

The menstrual cycles were regular in 70% of the adolescent group of females, and in 78% of the adult women; these figures do not appear to differ from the average found in normal women. Exacerbation of acne with different phases of the menstrual cycle was noted, and over 70% flared premenstrually, while the occasional exacerbation was observed during ovulation. There is no well documented explanation for this cyclic variation. It is true that the œstrogen and progesterone levels are somewhat lower at this time, and sodium and water retention or even the psychological factors of premenstrual tension, may also be of significance.

Seasonal variations.—Seasonal variations in intensity of the acne seem to vary with local climatic conditions. Sutton[8] found the majority of his cases worse in the summer. Severe exacerbations occurred in the hot season, and in the tropics; but this does not appear to be so in

TABLE I.

Sex and age groups	Number of cases	Type of acne			Onset of acne Years						
		Comedo %	Pustular %	Cystic %	Information available No. of cases	< 10 %	10 - 13 %	13 - 16 %	16 - 20 %	20 - 30 %	Over 30 %
Adolescent females	141	16.3	70.9	12.8	134	2.2	52.3	32.8	12.7	0.0	..
Adult females	122	4.9	79.6	20.5	110	0.0	25.5	22.7	2.0	23.7	8.1
All females	263	11.0	72.6	16.4	244	1.1	40.0	28.1	17.0	10.5	3.3
Adolescent males	31	0.0	67.7	32.3	29	0.0	24.2	68.9	6.9	..	..
Adult males	19	5.2	68.4	26.4	18	0.0	0.0	11.2	38.8	38.8	11.2
All males	50	2.0	68.0	30.0	47	0.0	14.9	46.8	19.2	14.6	4.2
Totals	313	9.6	71.8	18.6	231	1.0	35.6	32.3	16.3	11.2	3.6

TABLE II.

Sex and age group Total No. of cases	Basal metabolic rate				Regularity of Menst. cycle			Influence of menstrual cycle			
	Information available	+10 to 0	0 to -10	-10 to -35	Information available	Regular	Irregular	Information available	No influence noted	Worse before menstruation	Worse at other times of cycle
	No. of cases	%	%	%	No. of cases	%	%	No. of cases	%	%	%
Adolescent females 141	75	10.7	38.7	50.6	101	70.3	29.7*	108	28.0	66.6	5.4
Adult females 122	56	14.5	28.5	57.0	94	87.2	12.8	98	30.3	65.2	4.5
All females 263	131	12.3	34.3	53.4	195	78.9	21.6	206	28.2	66.0	4.8
Adolescent males 31	12	0.0	50.0	50.0							
Adult males 19	6	16.6	50.0	33.4							
All males 50	18	5.5	50.0	44.5							
Total 313	149	11.4	36.2	52.4	195	78.9	21.6	206	28.2	66.0	4.8
								*5 cases not menstruating			

Eastern Canada. A definite improvement during the summer months was noted in 60% of our cases. However, exacerbations often occurred in September and October in those patients who had practised excessive sunbathing during the summer.

Influence of diet.—Almost 50% of our patients stated that certain foods caused a flare of the acneform lesions, and chocolate was mentioned by the majority as the chief offender. A very small quantity of chocolate was sufficient in some cases to provoke an exacerbation regularly; this would point to a specific stimulating effect of chocolate on the sebaceous glands. Other patients noted that intake of higher amounts of any fats or oils caused a flare; this is suggestive of an indirect follicular stimulation, perhaps mediated by a disturbed cholesterol metabolism.[9]

TABLE III.

Sex and age group	Total No. of cases	Seasonal influence: Information available	Seasonal influence: No influence noted	Seasonal influence: Better in summer	Seasonal influence: Worse in summer	Influence of diet: Information available	Influence of diet: No influence noted	Influence of diet: Aggravated by certain foods	Influence of diet: Offending foods: chocolate	Influence of diet: Offending foods: sweets	Influence of diet: Offending foods: other	Allergy: History of allergy
		No. of cases	%	%	%	No. of cases	%	%	%	%	%	%
Adolescent females	141	113	25.8	66.4	7.8	93	59.2	40.8	28.0	6.4	6.4	18.4
Adult females	122	78	32.1	56.4	11.5	66	48.5	52.5	43.9	1.5	6.1	17.2
All females	263	191	28.2	62.3	9.5	159	54.5	45.5	34.4	4.3	6.8	17.8
Adolescent males	31	26	42.3	57.7	0.0	23	56.5	43.5	26.1	13.1	4.3	22.5
Adult males	19	9	22.2	55.6	22.2	7	28.6	81.4	57.2	14.2	0.0	15.2
All males	50	35	37.1	57.1	5.8	30	50.0	50.0	33.4	13.3	3.3	20.0
Total	313	226	29.4	62.0	8.6	189	53.9	46.1	34.3	5.9	5.9	18.2

Some patients stated that they were worse after eating sweets and a few named other foods such as tomato juice and coffee as offending factors. It is possible that an allergic mechanism was in operation in these latter instances;[10] in our series 18.2% of patients questioned gave a history, or had symptoms of allergic disease, a figure which may correspond to the incidence of allergy in the population.

THERAPY

1. *Local treatment.*—The following preparations were used in this series: (a) Intraderm sulphur[a] applied without friction twice weekly. More frequent use of this effective preparation resulted in a too high number of primary irritative contact dermatitis. (b) Application of 10% colloidal sulphur in a milk base containing stabilizers and colouring matter,[b1] five times weekly at night. (c) The following scalp lotion[b2] was prescribed in all cases with a seborrhœa capitis. Sulfidal 2%, salicylic acid 1.5% resorcinol monoacetate (Euresol) 2% in 75% ethyl alcohol, to be applied daily or every second night to scalp. (d) Sulphur carbon dioxide acetone therapy. A mixture of CO_2 snow, colloidal sulphur and acetone was applied once weekly to the areas involved. We had the impression that this therapy was the most effective of all external applications, resulting in quick drying of pustules and even in resorption of deep infiltrative and cystic lesions. (e) Moderate use of ultraviolet radiation at home was encouraged. (f) Expression of comedones was not practised regularly, but was done in some cases with many deep comedones.

2. *Dietary restrictions.*—Patients were asked to avoid chocolate, nuts, and salad dressings, to restrict fat intake, particularly fried food, and pork fat, but milk was not restricted. High protein intake was requested.

3. *Thyroid therapy.*—Dessicated thyroid, Burroughs and Welcome, 0.1 gm. daily for six weeks was prescribed in patients with clinically suggestive evidence of hypothyroidism, and in those showing a low B.M.R.

4. *Ovarian hormonal therapy.*—(a) *Females.*—The use of œstrogenic hormones appeared to be of some advantage, but has been replaced lately by the more effective progesterone therapy which has been used exclusively during the last year. The following procedures were used: basal temperatures were taken for three cycles, in order to determine the time of ovulation in most of those cases in whom a cyclic exacerbation of acne lesions occurred. Any irregularities of the

(a) Intraderm Sulphur—Wallace Laboratories Inc., New York, N.Y.

(b1) Medikon—(b2) De-Seb—(B3) Dermikon—Wm. Wright Laboratories, Montreal, Que.

cycle or absence of ovulation were usually remedied by the following therapy.

Three injections of 5 international units of progesterone[c] were given after ovulation at 3 to 4 day intervals up to the expected date of menstruation, for two months, two injections were given during the following one or two cycles, depending on progress. Then one injection was given seven days before the date of expected menstruation for several months. In eight cases progesterone was given prior to ovulation, and irregularities, such as bleeding at time of ovulation, or delay in onset of menstrual flow occurred in all; such upsets resulted in an exacerbation of their acne.

(b) An aqueous ovarian extract[d] was tried for several years with inconclusive results. Its use has been discontinued lately.

that the number of injections varies with each patient, either male or female, and in many instances was determined by improvement in condition.

6. *Control of secondary infection.*—(a) Hot compresses followed by topical application of aureomycin or neomycin in a water soluble base or shake lotion[b3] proved effective in controlling secondary infection. Appropriate soaps[e, f] were prescribed when indicated. Contact dermatitis due to these antibiotics has not been observed in this group of patients. (b) In some patients with large cysts, aspiration of the content and instillation of an antibiotic proved successful. (c) Mixed vaccine[g] was used routinely in patients in whom severe pustulation was present, and who did not respond to local therapy and in cases of deep cystic acne. Autovaccine was prepared for patients in whom the mixed stock vaccine was unsuccessful. Bacteriological studies were done in these patients. Micrococci were demonstrated in the majority of cases while *Staph. pyogenes* were found in some.

TABLE IV.

Sex and age groups	Number of patients treated and followed		Follow-up		Methods of therapy						Results			
			Less than 3 months	more than 3 months	Vaccine toxoid	Thyroid	Estrogens	Ovarian granules	Sulfur slush	Vitamin A	Free of symptoms	Marked improvement	Moderate improvement	No improvement
Adolescent females	119	No	57	62	14	70	15	13	7	13	23	31	56	9
		%	47.9	52.1	11.6	58.7	12.6	10.9	5.8	10.9	19.2	26.1	47.1	7.6
Adult females	102	No	49	53	19	57	12	10	8	10	21	9	53	19
		%	48.1	52.9	18.6	55.8	11.7	9.8	7.8	9.8	20.2	8.9	51.9	18.8
Total females	221	No.	106	115	33	127	27	23	15	23	44	40	109	28
		%	47.9	52.1	14.9	57.4	12.2	10.4	6.7	10.4	19.9	18.1	49.3	12.7
Adolescent males	25	No.	9	16	6	16	8	0	2	3	3	3	13	6
		%	36.0	64.0	24.0	64.0	32.0	..	8.0	12.0	12.0	12.0	52.0	24.0
Adult males	17	No.	10	7	7	8	5	0	1	1	2	6	8	1
		%	58.8	41.2	41.2	47.0	29.0	..	5.8	5.8	11.8	35.3	47.1	5.8
Total males	42	No.	19	23	13	24	13	0	3	4	5	9	21	7
		%	45.4	54.6	30.9	57.1	30.9	..	7.1	9.5	11.9	21.5	50.0	16.6
Totals all cases	263	No.	125	138	46	151	40	23	18	27	49	49	130	35
		%	47.5	52.5	17.4	51.8	15.2	8.7	6.7	10.2	18.6	18.6	49.5	13.3

5. *Males.*—(a) One mgm. of stilbœsterol was given for a period of 10 days. No side effects were seen with this short term therapy, but swelling of breasts occurred in one patient who continued therapy against advice. A "no repeat" sign on prescription is suggested.

(b) During the last year, progesterone has been given to a number of adolescent males in the following dosage: three injections of 5 units over a ten day period followed by a rest of a week. Progesterone 5 units was then given once a week for two weeks, then every other week, two to three times depending on progress—then at 3 to 4 week intervals as maintenance therapy for several months. Satisfactory response was noted, which is in contrast to the findings of Lewis and collaborators.[11] It should be noted

Antialpha hæmolysin titres were determined in the latter group and in patients with low titres staphylococcus toxoid was used and the test repeated at regular intervals; an increase in titre was noted after therapy.

7. Psychosomatic relations were recognized in some instances, particularly in the adult group. No further psychiatric investigation of these cases was done, and no therapy attempted except encouraging the patients to verbalize their problems. Bellergal, (Sandoz) as depressant of

(c) Lutoform—British Drug Houses (Canada) Ltd.
(d) Ovarian glanules (Armour Laboratories, Chicago, Ill.
(e) Stiefel Acne Aid Detergent — Med. Soap Co. Inc., Oakhill, N.Y.
(f) Gamophen—Johnson & Johnson, Canada Ltd.
(g) Staphylo Serobacterin Vaccine Mixed (Sharpe & Dohme) Toronto, Ont.

the autonomic nervous system, was prescribed occasionally.

Treatment results were listed as follows: (1) Free of symptoms; no new lesions for three months. (2) Good improvement; free of symptoms except some individual comedones or appearances of a few small pustules premenstrually. (3) Moderate improvement—significant reduction in number of lesions. (4) No improvement.

Table IV shows the various therapeutic methods and the treatment results. It appears that the adult group was somewhat more resistant to therapy. There was no significant difference between men and women.

Table V compares the results of therapy of the total 263 patients summarized in Table IV with one group of 119 unselected and consecutively registered patients seen during the years 1950 and 1951, and a group of 40 patients, who were retreated because of unsatisfactory therapy results. Those latter 40 patients had been included in Table IV under the heading of not improved or moderately improved. Progesterone therapy and sulphur carbon dioxide slush were added in the latter two groups. This table demonstrates marked improvement of the therapeutic results in those two groups. The cases refractory to short term therapy responded well to retreatment and intensification of therapy.

TABLE V.

improvement	*Methods of therapy*				*Results of therapy*					
Number and type of patients	*Vaccine toxoid*	*Thyroid gland*	*Œstrogens*	*Progesteron*	*Aqueous ovarian extract*	*Sulphur slush*	*Free of symptoms*	*Good improvement*	*Mod. Imp.*	*No Imp.*
263 Total of patients seen treated 1942 to 1950	46 17.4%	151 51.8%	40 15.8%	0	23 8.7%	18 6.7%	49 18.6%	49 18.6%	130 49.5%	35 13.3%
40 Continuation of therapy in a group of patients listed in Table IV as not improved or moderately improved	17 42.5%	25 62.5%	21 52.5%	14 35%	6 15%	25 62.5%	24 60%	15 37.5%	0	1 2.5%
119 Patients treated 1950 and 1951	17 14.5%	37 31%	26 25.85%	73 61.34%	6 58%	69 57.97%	46 38.64%	55 46.21%	17 14.28%	1 0.85%

We have emphasized that the tables presented do not lend themselves to an accurate and statistically valid evaluation. A careful study of the case material, however, permits a subjective interpretation. While this paper was in preparation, an article on therapy of acne was published by Andrews and collaborators[12] reporting on 500 cases. Our therapeutic technique and our conclusions are similar in many instances to Andrews, and it should be noted particularly that x-ray therapy was not used in either of the series reported.

Discussion

We admit that the figures listing cure or improvement in our Tables are based on subjective interpretations and that the follow-up was not sufficient to make any categoric statements. We have, however, no hesitation in expressing our satisfaction with the treatment results.

Therapy was usually started with routine instructions and with the application of the lotions mentioned. A considerable number of patients were controlled by these simple methods.

Progesterone, sulphur slush therapy and thyroid medication was added in the resistant cases. The majority of patients obtained satisfactory results with short term hormonal therapy. Progesterone appeared to be the most effective single agent. It should be emphasized that therapy in females was given during the 10 premenstrual days for two months. This proved sufficient in preventing the commonly seen premenstrual exacerbation.

It should also be mentioned that menstrual irregularities have been regulated and that the underlying seborrhœa has improved in most cases. The tables show that a large number of patients treated by this method improved satisfactorily within three months. A maintenance dose of one or two monthly injections of 5 units carried on for several months prevented relapses. It may also be noted that the patients treated during the year 1951 have received a less complicated treatment schedule, and the results have been superior to the previous years. Less vaccine and staphylococcus toxoid was necessary and œstrogenic therapy was almost entirely abolished. The favourable effect of progesterone therapy

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was demonstrated in some instances of long standing therapy resistant acne, such as the case of one woman who had been suffering from a severe cystic and indurated acne for over 20 years; nevertheless, complete freedom of symptoms was observed in a short time and the result maintained for over one year.

There is no doubt that the occasional case may benefit by additional x-ray treatment, but we feel safe in saying that treatment of acne vulgaris with the combination of older and newer methods is gratifying and gives better results than routine radiation therapy for every case without attempting to regulate the underlying factors.

SUMMARY

Three hundred and thirteen patients, seen in private practice have been investigated and the following findings were noted.

Over 70% of the female patients gave the history of a pre-menstrual exacerbation.

Over 60% gave the history of improvement during the summer and exacerbation in the autumn months.

More than 50% out of 149 patients examined had a B.M.R. lower than –10.

Tables showing the therapeutic results are presented and satisfactory results were obtained without the use of roentgen rays.

Addition of progesterone therapy to the therapeutic methods used has improved the results significantly.

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SOME OBSERVATIONS ON HÆMOGLOBIN LEVELS OF AN INDIAN POPULATION

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THE FOLLOWING FIGURES and remarks apply to the Cree Indian population belonging to the five reservations in Northern Manitoba, indicated in the map, Fig. 1. Hæmoglobin levels and blood smears were taken on available population assembled for payment of Treaty during the period June 19 to August 19, 1951.

All readings were taken on the same single instrument, a Spencer battery operated hæmoglobinometer. All readings were read by one or other of two operators only, and frequent cross-checks were done to obviate any personal differences in interpretation.

This instrument was compared with other methods under the direction of Dr. D. Nicholson, Pathologist, Winnipeg General Hospital. Duplicate readings on the Spencer were taken on random samples by the technician who assisted at the original survey, and the result in grams compared with the readings on a Halross Photoelectric Colorimeter, pipetting 20 c.mm. blood into 10 c.c. of 0.4% ammonium hydroxide. The result showed a consistently higher reading of 0.1 to 0.2 grams on the Spencer. Comparison with copper sulphate specific gravity method and by estimation of whole blood iron was also carried out. The results are shown on Table I.

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This work was carried out in order to assess the population concerned. The hospital admission rate for sick children is considerable and it was found that almost all were more or less anæmic. Moreover, a previous survey by Moore and Kruse[1] indicated that the diet of this population was inadequate in many factors, both in respect of quantity and quality of the basic foods and of vitamins and minerals. It was, therefore, important to cover the entire population and to break down the results in terms of age and sex. It is no more than an outline of

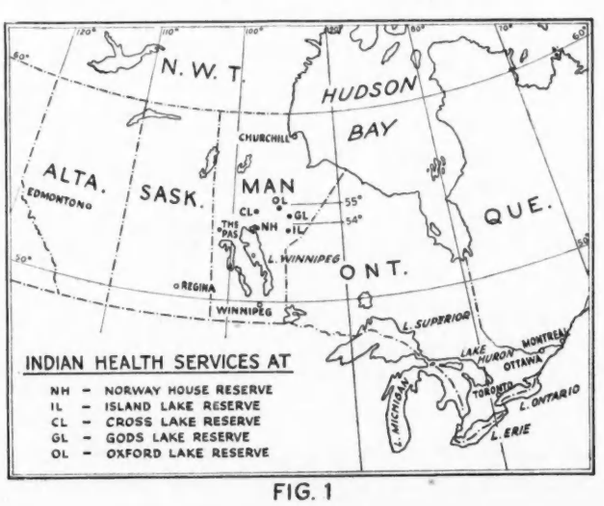


FIG. 1

the preliminary results and normal ranges and deviations are not shown. Also, more detailed work on the various pertinent aspects such as complete blood studies, therapy responses, influence of maternal anæmia, etc., have not been touched upon. However, the present observations might be of interest to those engaged in similar work.

RESULTS—OVER ALL

Table II, showing age groups levels for both sexes has been planned to correspond with the groups reported on by Pett and Ogilvie[2] so that more useful comparisons might be made.

Males.—A steady rise for males from 7 years to a peak in the 30 to 39 year group is shown with a subsequent slight falling away in the older ages. The average level for males was 13.0 gm. per 100 ml. blood.

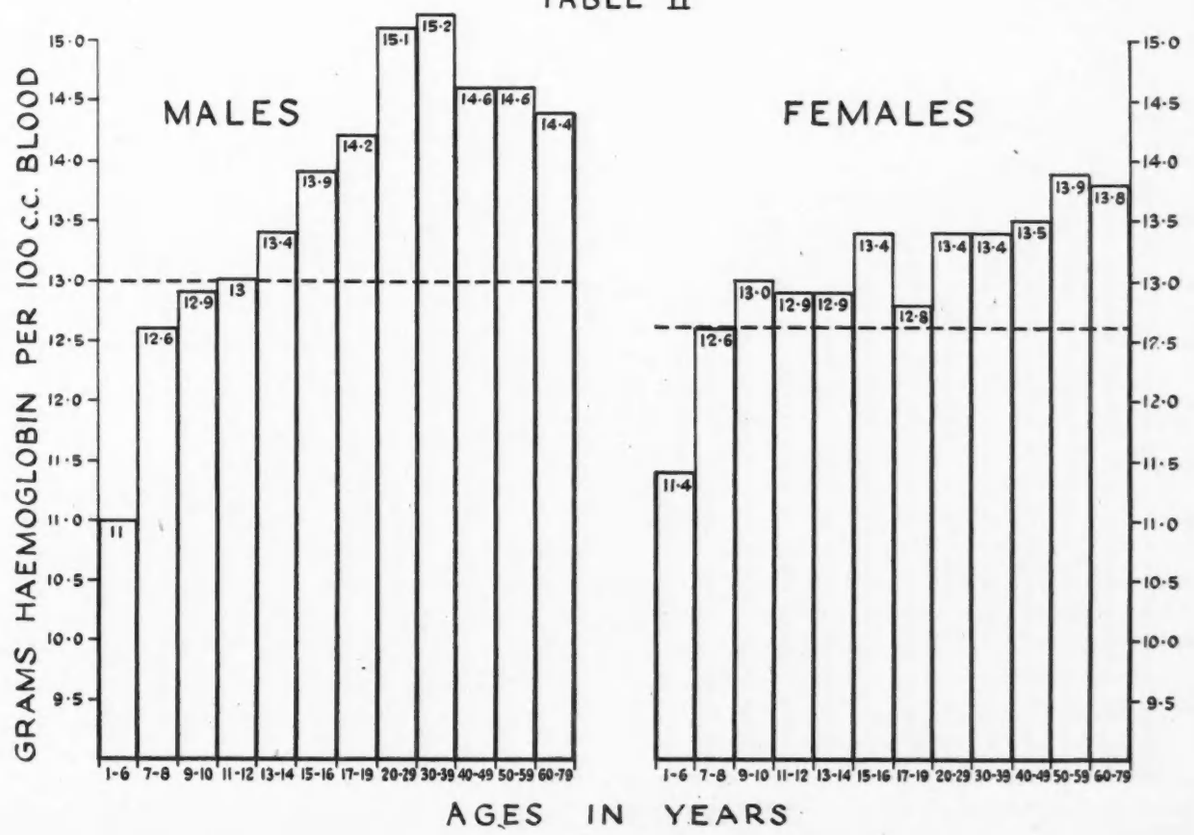
Females.—Females show almost the same levels as males for ages up to 10 years; thereafter there is a levelling out through the years corresponding to the onset of puberty in this population. There is a slight rise shown for the ages 15 to 16 years with a fall again in the ages 17 to 19 years. This fall has previously been reported by Hawkins *et al.*[3] The level through the average child-bearing period is very constant

TABLE I.

CALIBRATION OF SPENCER Hb-METER

	Spencer Hb-meter	*Halross photo*	*Hb. by Fe anal.*	*Whole blood*	*Hb. by $CuSo_4$ S.G.*
Sample A	14.5	14.5	14.6	48.87	13.6
	14.4		14.6	48.86	13.6
Sample B	14.7	14.7	14.6	48.87	14.4
	14.6		14.5	48.64	14.4
Sample C	16.2	16.4	16.0	53.72	——
	16.1		16.7	55.82	——
Sample D	10.0	9.8	10.2	34.09	8.3
	10.0		9.5	31.81	8.3

TABLE II



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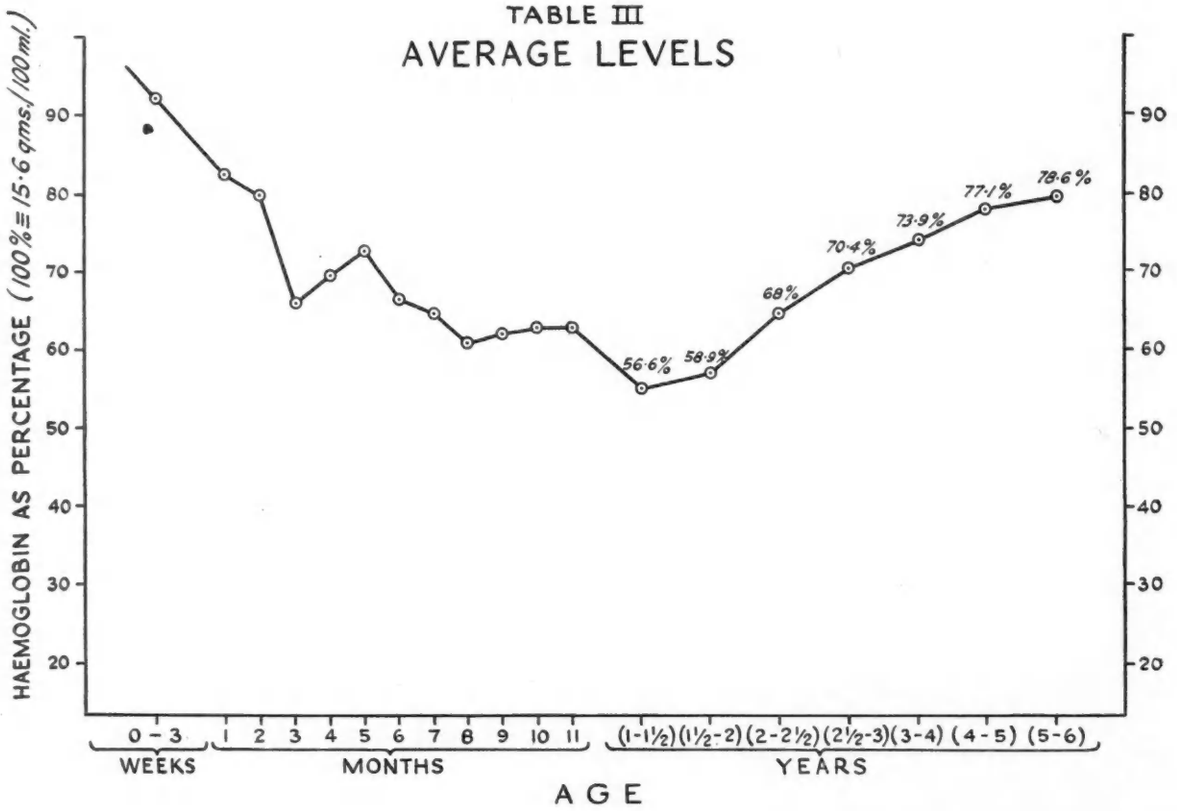
and slightly higher than that of the adolescents. A further rise is shown from 40 to 60 years. The average menopause age in this population is 42 to 45 years. The average hæmoglobin level for females was 12.6 gm. for 100 ml. blood.

One year to six year group.—The level for this group in both sexes was almost the same and considerably lower than all others, being 11.4 gm. per 100 ml. blood for females and 11.0% for males. This group will be dealt with separately.

TABLE III

AVERAGE LEVELS



DISCUSSION

These figures were obtained from 2,563 Indians, 1,286 males and 1,277 were female. They represented all available population at the time and are not confined in any way to any special sample. It is felt, therefore, that they well represent the entire population concerned. Their economic status is extremely low. The results shown indicate that despite economic status and estimates of other nutritional dietary factors, this people is able to maintain from the age of 7 years onward a fairly satisfactory hæmoglobin level, even during menstruation, growth and childbearing. It would seem that the economic status and apparent poverty of diet is no indication that deficiency in iron will also be present. This does not mean however, that the levels shown are considered optimal. Also, it is obvious that each age and sex group must have its own standard of "normality", and that one cannot be compared with another. The initial marked disadvantage of the under six-year olds is well recovered from and must have utilized a considerable iron intake. One speculates that a certain pattern is established in a given population, and various average levels being determined by factors other than the iron content of the diet alone.

RESULTS—UNDER SIX YEARS

Table III shows the average hæmoglobin at different ages for children from birth to 6 years, both sexes considered together. The results are shown here in percentages because it was decided that most clinicians think in such terms when considering anæmia, despite the fact that they only represent a relationship to any selected standard. In this case 15.6 gm./100 ml. blood was taken as 100%. It is emphasized that the graph for ages up to 6 months is not claimed as the pattern followed by the average child. The

number at those ages is small and the figures greatly modified by such factors as prematurity. From 6 months on, sufficient numbers at each age were obtained to justify attaching significance to them. A total of 784 children were examined for these figures.

It will be seen that the hæmoglobin level falls away and reaches its lowest in the 1 to 1½ year group, thereafter there is a slow but steady recovery up to the age of 6 years. There is thus shown the "physiological" anæmia of infancy which is not recovered from, but indeed becomes steadily worse, until at the age of 1½ years, the average hæmoglobin reaches the frightening level of 56.6%. A better indication of the situation is obtained from a study of Table IV. Only

TABLE IV.

PERCENTAGE OF ANÆMIA IN 715 CHILDREN BY AGES

Age group	*Total number*	*Number under 70%*	*Percentage anæmic*
6 months to 1 year....	53	39	73.6%
1 year to 1½ years....	84	71	84.5%
1½ years to 2 years...	73	60	82.2%
2 years to 2½ years...	68	37	54.4%
2½ years to 3 years...	56	23	41.1%
3 years to 4 years.....	135	32	23.7%
4 years to 5 years.....	128	20	15.6%
5 years to 6 years.....	107	12	11.2%

levels under 70% were considered anæmic in order to be as conservative as possible in these estimations. Despite this, the percentage of anæmia in the groups 6 months to a year, 1 year to 1½ years, and 1½ to 2 years was 73.6%, 84.5%, and 82.2% respectively. Thereafter the figure drops away until in the 5 to 6 year group it is 11.2%. These results are frightening when one considers that the mortality and morbidity rates in Indian infants and children are among the highest in the Dominion. The incidence of upper respiratory infection and pneumonia is appalling and is responsible for a large part of the death rate. Moreover, tuberculosis is a major concern in this population and it may possibly be that anæmia is a contributing element.

Study of a considerable number of these children of 1 year and over with particular reference to the blood, has shown in all cases a well marked anæmia, frequently hypochromic and microcytic. Study of the entire picture to date makes it evident that there is an almost universal deficiency of available iron from early infancy onwards until 2 years of age. It may be that the main cause of the anæmic state of these children is the undue delay in adding to milk feeding. More than 90% of them are breast fed, and many cases have been seen of 2 year old children still almost entirely breast fed, and a few even older than this. The problems of other factors such as prematurity, intestinal infection, maternal anæmia, and the possible unsuitability of the Indian diet for infants are being studied in more detail, as has already been mentioned. (It is interesting that only one case of clinical scurvy has been seen in this group during one and a half years of study.)

All sample cases which have been treated with ferrous sulphate alone have shown a quite dramatic response in both the blood state and in general health. Indeed it is almost unbelievable to observe the change in energy, appetite and well-being in these children by the use of iron alone. Finally it should be noted that at the age of 2 years, when at last these children share the family diet, they can improve and regain what has been lost despite their initial disadvantage. These figures represent children in a "natural" state and not receiving any therapy.

SUMMARY

1. Hæmoglobin levels were studied on 2,563 Indians.

2. The average levels by age group and sex are shown graphically.

3. It is felt that they indicate a fairly adequate iron content in the diet.

4. Certain trends for different ages are shown.

5. A more detailed breakdown for the ages 0 to 6 shows: (a) An alarming incidence of anæmia from 6 months to 2 years with its lowest point in the 1 to 1½ year group. (b) A slow but steady recovery from between 2 years and 6 years.

6. From information obtained to date the prime factor in this infantile anæmia would seem to be the undue delay in the addition of any solid or semi-solid foods to the diet, and the unduly prolonged period of milk feeding.

I wish to acknowledge my appreciation of the assistance given by Miss M. E. Cross, R.N., R.T., Laboratory Technician, Norway House Indian Hospital, in making the original readings and preparing slides, and of the advice and direction of Dr. D. Nicholson, Pathologist, Winnipeg General Hospital in calibrating the instrument.

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ACRODYNIA TREATED WITH 2-BENZYL-IMIDAZOLINE HYDROCHLORIDE*

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ACRODYNIA (pink disease, Swift's disease, Feer's disease, erythrœdema, or dermatopolyneuritis) is a well-established, bizarre, clinical syndrome.[1, 2] The onset is usually insidious. The most prominent features are readily recognized in a well-established case. These include personality changes; apathy alternating with extreme irritability; insomnia; anorexia; photophobia; hypotonia; pseudoparalysis; itching, burning, and severe extremity pain; hypertension; tachycardia; evanescent rashes; excessive perspiration; secondary infections; desquamation; alopecia; occasionally loss of nails, phalanges, and teeth; excessive salivation; pink hands and feet; scarlet cheeks, ears, and nose.

This syndrome was first described in 1903 by Selter[3] in Germany who called it "trophodermatosis". It was not until 1914 that Swift[4] in Australia attracted attention to this distinct clinical entity under the name of erythracedema". In 1920 Bilderback[5] reported 10 cases of the syndrome for the first time in the United States. Later in the same year these cases were again reported by Weston[6] under the name "acrodynia", a term originally given by Chardon[7] in 1830 to an epidemic erythema in France. The two diseases were not the same. In 1923 it was described by Feer[8] in Zurich as "Vegetative Neurose des Kleinkindes". Today acrodynia is the term most popularly applied on this continent to this disease.

Since the turn of the century over 1,500 cases of this syndrome have been described under different names in Australia, Europe, and North America. The main bulk of reported cases comes from Australia.

The purpose of this paper is to present the record of a severe case of acrodynia treated successfully with 2-benzyl-imidazoline HCl ("Priscoline"). A search of the English literature would suggest that such therapy has not been hitherto recorded. A brief review of the modern concepts of the etiology and pathologic physiology in support of this form of therapy is presented.

*2-benzyl-imidazoline HCl is an adrenolytic agent with strong sympatholytic and vasodilator properties.

From the Department of Pædiatrics, St. Joseph's Hospital, Victoria, B.C.

G.C., a 26-month-old white boy was admitted to hospital October 29, 1951. The parents had observed: (1) Insidious change in personality of 3 months' duration with marked deterioration of 3 weeks' duration. (2) Protean skin rashes of 3 months' duration. (3) Paresis, anorexia, and insomnia of 3 weeks' duration.

His family history, and past history were not remarkable.

He had previously been a happy, healthy, active, impish child. There had been occasional fussy periods between the ages of 6 and 18 months. These were blamed on teething discomforts and were treated with teething powders (containing mercurous chloride) on some twelve or more occasions. At 23 months he developed a lesion on his chin. This was treated with one-half ounce of 2% ammoniated mercury ointment. Somewhat similar lesions soon appeared elsewhere. A 3% ammoniated mercury ointment was prescribed: 2 ounces of this ointment were applied to various types of lesions. These included ulcerations, impetiginous scabs, erythematous blotches, urticarial wheals, and sudaminal eruptions. These protean rashes, though ephemeral at times, covered most of his skin surface over the course of several weeks. Other ointments were prescribed but with little benefit.

The child became apathetic, except for periods of extreme irritability. He scratched continually, seldom smiled, hated company, and even shunned his parents' society. He was soon unable to stand. He assumed hypotonic attitudes. He whined and cried continually and often writhed in apparent agony. He would rub the soles of his feet against his shins in scissor-like fashion. He had periods of scratching and rubbing at his skin, ears, and palms of hands. He suffered almost complete insomnia for 3 weeks prior to his admission. He refused all solids and would only drink fluids. He was excessively thirsty on occasions. He sweated profusely at times and drooled almost continuously. He reverted to bowel and bladder incontinence. He preferred to burrow his head in his mother's chest and seemed to shun bright light. His skin became remarkably erythematous and painful on exposure to sunlight or warm bath water.

Various diagnoses had been offered his parents by physicians in order to explain these symptoms. These included measles, impetigo, "teething", and just being "plain spoiled". The child was in agony. The parents were anxious, desperate, and exhausted.

Physical examination revealed a moderately well-nourished and well-developed white boy. His facies showed a kaleidoscopic pattern of agony, lacrymosity, dejection, acute anxiety, and abject misery. Temperature 37.2 C. Pulse rate 150/min. Respirations 22/min. Blood pressure 190/150 mm. Height 74 cm. Weight 12.7 kg. He was extremely listless, but this state was interrupted by periods of marked irritability. He preferred to burrow his head into his pillow rather than face the light. His pupils were dilated and were slow to contract to light. Hair was dry and brittle. His nose and cheeks were a dusky pink, but his ears were scarlet, scratched and bleeding. His lips were cracked. Several small ulcerations involved his tongue and buccal mucosa. He drooled excessively. A clear mucous secretion dripped from the tip of his nose. He would grind his teeth, pound his head against the bars of the cot, rub the palms of his hands together in a miserly fashion, suck the ends of his fingers as if they were frost-bitten, and rub the sole of his foot against his opposite shin. At times, he would scratch and rub his ears, or the skin about his groin and buttocks, which were raw and oozing. There was a sudaminal eruption over most of his back. The tips of his fingers and toes were a dusky pink and appeared somewhat brawny. There was a fine tremor to his hands. The palms of his hands and the soles of his feet were pale, cold, and clammy. At times he was drenched in perspiration. He showed desquamation of different areas of the skin, particularly over the phalanges. He lay in an ungainly position of hypotonia. He would not stand. He showed no desire to play or smile. The muscles of his extremities appeared wasted. Superficial reflexes were absent, and deep reflexes were difficult to elicit.

Laboratory data.—R.B.C. count 4.9 million/c.mm.; Hgb. 13.4 gm./100 c.c.; W.B.C. count 11,300 with a normal differential. Erythrocyte sedimentation rate was 5 mm. in 1 hr. Hæmatocrit 45% packed cells. Total serum proteins 8.0 gm. %. Sodium 165 m.Eq./litre. Chloride (expressed as NaCl) 100 m.Eq./litre. Potassium 4.7 m.Eq./litre.

X-rays of the jaws and long bones were normal. Urinalyses were normal. Blood Kahn test was negative, as was old tuberculin 1/1,000 skin test.

Urine samples were collected for the first few days after admission before any treatment was instituted. These were examined for the presence of mercury by means of the di-beta-naphthylthiocarbazone method.[9, 10] Mercury content of specimens of urine are expressed below in Table I as micrograms per litre or urine.

TABLE I.

Date	*Mercury in urine (micrograms per litre)*
October 31	170
November 1	165
November 2	180
November 4	210

Excretion levels above 50 micrograms of mercury per litre of urine are definitely abnormal,[11] and beyond possible limits of error of this method.

Progress notes.—In hospital his condition remained unchanged. He showed no desire for food and would only drink milk, at times in excessive amounts. After the first week in hospital, he was given a ten day course of dimercaprol (BAL) as advocated by Bivings and Lewis.[12]

After four days on BAL therapy his condition remained unchanged. On the fifth day oral administration of Priscoline q.6 h. was begun. He immediately began to show evidence of symptomatic improvement. A dosage of 12.5 mgm. q.6 h. was instituted. It was found necessary to increase this dose to as much as 25 mgm. q.2 h. in order to maintain symptomatic relief.

He now enjoyed his bath, laughed and played, where previously warm water had proved agonizing. He played with toys, and began to feed himself solids for which he showed an ever-increasing desire. He stood up in his crib, and a day or so later enjoyed walking about the ward. He gained in weight, his skin cleared, he drooled less, his nose, cheeks, ears and nail beds took on a natural hue and there was marked desquamation of the skin of his phalanges. The pulse rate decreased from 180/min. to 120/min. The blood pressure dropped from 230/180 mm. to 130/90 mm. He showed no photophobia. There was evidence of dramatic improvement.

He was discharged home and the Priscoline was discontinued. Within 24 hours the same distressing symptoms recurred. By the end of 72 hours he was so irritable that he was biting his mother, clawing at his skin, and pounding his head against the bars of his cot. He had not slept, he whined incessantly, and had no desire for food. All his severest symptoms returned, perhaps even more so than previously. Blood pressure was 220/175 mm. and pulse rate 180/min.

Priscoline was reinstituted in oral doses of 25 mgm. q.2 h. during the day and as often as necessary at night.* His return to health was dramatic. He became a satisfied child with a healthy appetite and capable of four to six hours of uninterrupted sleep. The blood pressure dropped to 140/100 mm. and the pulse rate to 130/min.

He was maintained on this "blockade" for 2 months. At the end of the first month the need for the drug had diminished considerably. He was receiving the drug about every 4 to 6 hours during the day. He was beginning to sleep through the night.

By the end of the second month the patient had no further need for the drug. He appeared well. His blood pressure was 120/85 mm. and his pulse rate 100/min. There was no evidence of hæmatopoietic depression while he was receiving the drug.

He has remained asymptomatic ever since. A 24 hour urine specimen was collected at the end of the third month. This was examined for the presence of mercury, and revealed 104 micrograms of mercury per litre.

*Enteric-coated "delayed-action" 2-benzyl-imidazoline HCl ("Priscoline") pills have since been made available for investigational use by Ciba Co., Ltd., Montreal, and could conceivably prove of considerable value in the management of acrodynia, particularly during sleeping hours.

COMMENT

There have been many theories advanced to explain the etiology of acrodynia. It has been considered infectious (viral),[13, 14] toxic,[11, 12, 15 to 18] an endocrine disorder, a dysfunction of the sympathetic nervous system,[8, 22 to 25] a gastrointestinal disease,[26] and a nutritional deficiency disease.[6, 27, 28]

The recent observations of Warkany and Hubbard[11, 16] suggest that the main etiologic factor may be a subacute mercury poisoning or hypersensitivity reaction ("idiosyncrasy") to mercury by a susceptible child. The rôle of mercury ointments and teething powders as the sensitizing agents has been repeatedly emphasized.[12, 16, 17, 18]

The administration of dimercaprol (BAL) may materially reduce the duration of the disease by increasing the rate of excretion of the sensitizing agent mercury. In spite of the enthusiastic reports of those who have used BAL in the treatment of acrodynia,[12, 16, 17, 18] the patients continue to do poorly. There is no abrupt termination to the distressing symptoms.

Australian reports have not yet produced confirmatory evidence that mercury plays any part in the etiology of cases of pink disease in Australia.

Recently Australian investigators, notably Cheek and Hicks,[19, 20, 21] have found consistently low plasma sodium levels in their cases of pink disease. They state that the oral administration of sodium chloride, with or without desoxycorticosterone acetate (depending upon the duration of the severity of the illness), will restore the salt-water balance, with complete and rapid abatement of symptoms. Because of these findings they believe they can explain pink disease as "fundamentally an adaptation syndrome, the manifold manifestations of which are causally related to hypofunction of the suprarenal gland, which is responsible for a lowered renal threshold for sodium chloride".

If these reported low plasma sodium levels, and sometimes low plasma chloride levels, are due to a deficiency in the suprarenal sodium-potassium hormone group, then surely they would expect an arterial hypotension, not an arterial hypertension as is so notoriously the case in acrodynia. The administration of DCA to patients with hypertension of adrenal cortical origin is known to produce serious sequelæ.[29, 30] However, the oral administration of sodium chloride with or without DCA produced uniformly good and rapid responses in their cases showing reduced plasma sodium levels.

It is suggested that sodium depletion may be explained by sodium loss from profuse perspiration, polydypsia and polyuria, diarrhœa and vomiting. Perhaps then the adrenal cortical sodium-potassium hormone group fails to maintain a renal conservation of sodium through sheer depletion of body sodium and deprivation of sodium intake. It appears quite reasonable to suppose that the sodium chloride intake in infants is deficient in this part of the world. Hicks[21] states, "There is a widespread belief among mothers, fostered by teaching of infant-nurses and welfare agencies, that salt should not be added to the diet when weaning, not even in cooking vegetables for purée. There is, too, owing to a warm arid climate, a large water loss from the skin due to the high evaporation rate, and this may be sufficient to deplete fetal salt reserves in certain cases, especially when on a salt-free diet". Hence the oral administration of sodium chloride with or without DCA might readily be expected to re-establish an electrolyte balance.

Feer,[8] Hutchinson,[22] Cobb,[23] Blackfan and McKhann,[24] and Eley[25] have all stressed a dysfunction of the sympathetic nervous system as being the basis of the pathologic physiology of acrodynia. Some of the principal sympathomimetic effects produced by stimulation of the sympathetic nervous system include; vasoconstriction, hypertension, tachycardia, increased salivation, increased lacrymation, increased perspiration, dilatation of the pupil, contraction of the spleen with consequent increases in blood volume, blood cell volume, and viscosity, and an increase in coagulability of the blood.

The site of action of the sympathetic nervous system to produce these effects is thought to be in those structures excited at the sympathetic nerve endings. There is an increased liberation of sympathin, or an augmented effect upon normally liberated sympathin at the sympathetic nerve endings. It is not due to an oversecretion of epinephrine by the adrenal medulla *per se*, for in this respect the pathologic physiology of acrodynia may differ from that of a pheochromocytoma.

Thus the manifold manifestations of acrodynia may well be related to dysfunction (sustained and increased effects) of the sympathetic nervous system in the susceptible child.

A drug that will produce both adrenolytic and strong sympatholytic effects might be expected to yield symptomatic relief to the patient with acrodynia. Such a drug is 2-benzyl-imidazoline HCl. The action of this drug is probably both medullo-spinal and peripheral,[31] principally the latter. The effect appears to be upon the termination of sympathetic motor nerves in smooth muscles.[32] Its strong and sustained vasodilating effect is probably due to two mechanisms: a block of sympathetic vascular receptors; and a direct histamine-like effect on small vessels.[33]

The optimal dose of 2-benzyl-imidazoline HCl varies with each patient, and depends to a great extent upon the severity of the condition under treatment. Hence, therapy must be strictly individualized. It is to be emphasized that therapy should not be discontinued until the maximal tolerated dose has been reached. It is a drug of low toxicity. There are few side reactions. No changes in blood pictures of patients given 2-benzyl-imidazoline HCl for prolonged periods of time were found in a reported series of cases by Grimson *et al.*[34]

CONCLUSIONS

It is suggested that: (1) The etiology in this case of acrodynia was a hypersensitivity to mercury. (2) The administration of BAL may have conceivably increased the rate of excretion of mercury and so reduced the "natural" duration of the disease. (3) The distressing symptoms in this case of acrodynia were due to a dysfunction of the sympathetic nervous system. (4) The persistent administration of 2-benzyl-imidazoline HCl blocked these distressing sympathomimetic effects throughout the duration of the disease.

The author is greatly indebted to Dr. Peter G. Mar for his valuable aid in the determinations of serum electrolytes and urine mercury content.

"Priscoline" (brand of 2-benzyl-imidazoline HCl) administered in the treatment of this case was provided by the Ciba Co. Ltd., of Montreal.

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CONTROLLED HYPOTENSION IN SURGERY

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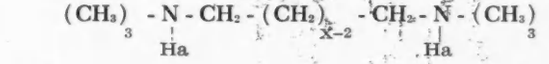
CERTAIN TYPES of operations have now made us anæsthetists extremely aware of the delay and irritation produced by persistent oozing of blood. In one operation in particular, a few drops of blood at the wrong moment may even nullify the operation—I refer here to the fenestration operation[1]—, but this hardly applies to the whole of surgery. Nevertheless, persistent oozing can not only be irritating it can be time consuming and often has as its sequelæ hæmatoma formation and maybe subsequent infection.

In the past, three forms of anæsthesia have been noted for their striking decrease in bleeding: (1) Chloroform due to its toxic action on the heart causing a decreased output and a lowered blood pressure. (2) High spinal anæsthesia—causing a paralysis of the sympathetic out-flow and a resultant vasodilation of those vessels affected with a concomitant fall in blood pressure. (3) Local infiltration with vasoconstrictors, adrenalin or cobefrin, etc., added. Here a true local vasoconstriction occurs and as soon as the vasoconstrictors are absorbed there is a reflex vasodilatation, probably further oozing and formation of hæmatomas.

A more recent method of decreasing the blood pressure[2, 3] has been to insert a cannula into the radial artery and to rapidly withdraw blood until the systolic pressure has dropped to 100 or less mm. Hg. This usually requires the withdrawal of as much as 2,500 c.c. of blood. At the completion of operation this blood is re-transfused back through the cannula in the radial artery.

In neurosurgery this technique has had claimed as its advantage, extreme vasoconstriction—a natural response to the blood loss—at the same time the cerebral cortex shrinks due to the concomitant reduction in cerebro-spinal fluid pressure, thereby access to intracranial structures is correspondingly easier.

Recently a new series of drugs has been synthesized—the polymethylene bistrimethylammonium di-halides.[4, 5]



The hexamethonium (C6) and pentamethonium (C5) members of this series are powerful autonomic ganglion blocking agents—blocking these ganglion at their pre-ganglionic synapses. Their action is shown by paralysis of the superior cervical ganglion, fall of blood pressure, paralysis of the peristaltic reflex of the small intestine, and paralysis of the action of the vagus on the heart. Pentamethonium is said to be four-fifths as active on the sympathetic and one-third as active on the parasympathetics as hexamethonium.[1]

Conversely it has been claimed[19] there is no difference between their actions. I would prefer to keep an open mind until more conclusive proof is obtained. However, clinically I feel that hexamethonium is more efficacious than pentamethonium (Fig. 1).

Initial work[6] showed that the potency of the halide salts of hexamethonium given orally and expressed in terms of the cation was highest for

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the iodide and lowest for the chloride with the bromide intermediate, but recent work[7] now shows that these salts are hydroscopic, the chloride more than the iodide and the variation in activity was due to this inaccuracy.

In anæsthesia the dosage used is of very small magnitude compared to that used for treating hypertensives medically; for if these compounds are used over a long period, the dangers of bromism[8, 9] and iodism are not to be ignored. With either of these compounds a tolerance is soon acquired and within a few weeks as much as tenfold must be given to obtain the same effect. Mercifully this does not seem to progress indefinitely. With these thoughts in mind, it would seem wiser therefore to use the chloride or other salts when they are obtainable. Hexamethonium bitartrate[10] has recently been used successfully; a 350 mgm. tablet has a potency equivalent to

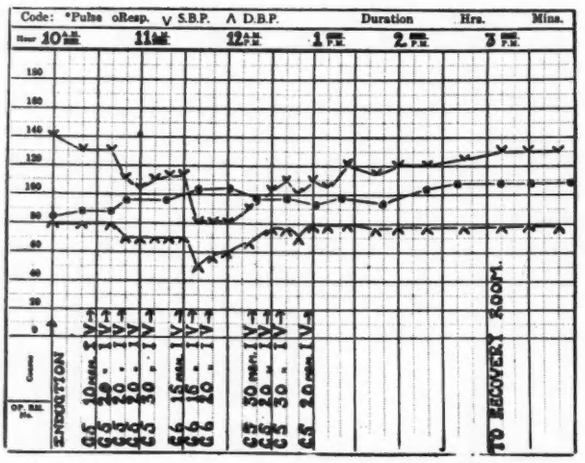

Fig. 1.—Male age 28, weight 140 lb. Premedication:—hyperduric morphine gr. 1/4, atropine gr. 1/75. Anæsthetic: pentothal, nitrous oxide and trilene. Operation: Craniotomy and removal of acoustic neuroma. Posture: sitting.

NOTE—Due to unforeseen circumstances, only one ampoule of hexamethonium available. Very poor response to pentamethonium, a fair response to hexamethonium, and again a very poor response to pentamethonium.

Uneventful recovery.

250 mgm. hexamethonium bromide, which is equivalent to 140 mgm. hexamethonium expressed as the cation.

It has been customary to look upon a sudden hypotensive state as indicative of one of the many signs of shock, and that an abnormally low blood pressure for some time led to irreversible changes in vital organs—the brain especially. This is certainly true of pure shock, but it is well to remember that in controlled hypotension the low blood pressure is obtained by generalized vasodilation,[11] the patient's skin remaining dry, warm and pink.

It has been shown that provided adequate oxygenation is maintained and the blood pressure lowered by sympathetic block[12, 13] (in these cases total spinal analgesia), the arteriolar pressure is not affected until the systolic pressure falls below 40 mm. Hg., and also that the blood flow through vital organs is normal with a systolic pressure over 40 mm. Hg. This statement I feel needs a slight modification, as with a patient in a sitting or upright posture, the force required to sustain a column of blood from the heart to the vertex of the skull in an average male is in the order of 30 mm. Hg. It would seem wiser therefore to say that the critical systolic pressure during surgery with the patient in a sitting posture should not be below 70 mm. Hg.

In this way the pressure in the arteries in the vault of the skull will be 70 less the hydrostatic column of blood, leaving a net pressure of around 40 mm. Hg. One of the main factors influencing the maintenance of blood pressure is the peripheral resistance of the arteriolar bed, and in total sympathetic block this peripheral resistance is very much decreased, yet cardiac output remains the same. Recently it has also been demonstrated that renal flow also remains constant.[20]

At first thought, it would appear that after controlled hypotension, hæmatoma and postoperative bleeding would be inevitable, but the contrary is true, as the hypotension is produced by vasodilatation and it is some hours before the blood pressure returns to its preoperative level. By then thrombosis has occurred in the cut ends of the vessel and as the blood pressure rises, it does so by the constriction of the vessels; this means contracture on any thrombi forming in the cut ends.

Due to blockage of the autonomic ganglions visceral stimuli are much reduced and consequently operative shock is conspicuous by its absence. This is comparable to the resistance of totally sympathectomized dogs to shock.

METHOD OF USE

To obtain effective controlled hypotension:

1. Adequate posturing is essential:[14, 15] reverse Trendelenberg, sitting or the jack knife position with the legs dependent. The Trendelenberg posture is not nearly as effective as reverse Trendelenberg, owing largely to the increased postural venous return to the heart and consequently an increased cardiac output. But even in

Trendelenberg, methonium compounds will produce a moderate hypotension. It is in this posture that hypertensive episodes are often seen with cyclopropane.

In one case, a suprapubic prostatectomy, the blood pressure rose from a normal of 160/100 to 250/180 mm. Hg. and a small hæmatoma appeared on the lobe of one ear. 30 mgm. of pentamethonium intravenously effectively reduced the pressure to 120 mm. Hg. systolic. The patient made an uneventful recovery. It is easy to speculate what might have happened to a cerebral vessel if this high pressure had not been reduced.

2. For anæsthetic agents, pentothal and nitrous oxide with trilene if required, seem to give the best results.

3. Dosage.—With the patient anæsthetized and suitably postured, I give an initial test dose of 10 mgm. of methonium intravenously and record the blood pressure every minute. The maximum effect appears in about five to ten minutes and the duration of action is very variable. If the fall in pressure is not adequate I add further increments of up to 25 mgm. intravenously at five minute intervals until I have obtained the desired hypotensive level; then for future doses I give this total dose intramuscularly repeated as required by the length and type of operation.

I do not attempt to lower the blood pressure to any given figure, but rather to lower it sufficiently for that particular operation and that particular patient, *i.e.*, 100/mm. Hg. systolic will be satisfactory for one patient, another may require a hypotension of around 60 mm. Hg. systolic.

Patients appear to fall into two main groups:

1. Those with labile healthy cardio-vascular systems in whom it is often difficult to obtain a satisfactory hypotension, the duration of action is short lived and a tachycardia of 110 to 130 per minute is the rule.

2. Those with non-labile cardio-vascular systems—especially gross hypertensives in whom a small dose produces a marked fall of long duration—often show little change in pulse rate.

During long operations under controlled hypotension careful watch must be kept on blood pressure, pulse and general condition of the patient. I have found it extremely useful to record skin temperatures: a falling skin temperature being a sign that the hypotension is getting out of "control" and that blood loss needs replacing. This statement seems rather contradictory, but during controlled hypotension, even a small amount of blood loss seems to be exaggerated by the patient's response.

In one operation for the removal of an intracranial tumour lasting some six hours, the skin temperature dropped 1.4° F. 250 c.c. of blood was more than adequate to restore the skin temperature to its previous reading, and to those of you familiar with cranial surgery, 250 c.c. of blood is microscopic (Fig. 2).

When hypertensive episodes occur under cyclopropane anæsthesia and all the usual methods have been without avail, I use methonium and aim to lower the blood pressure to more normal levels, aiming more at a satisfactory blood pressure level than at a bloodless field.

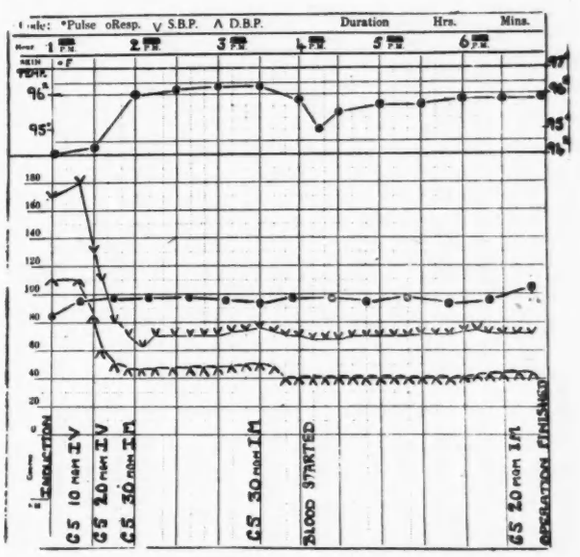

Fig. 2.—Male age 56, weight 196 lb. Preoperative B.P. 180/110. Premedication: hyperduric morphine gr. 1/4, atrophine gr. 1/75. Anæsthetic: pentothal, nitrous oxide and trilene. Operation: removal of cerebellar tumour. Posture: sitting.

NOTE—Fall in skin temperature and steady rise again with blood transfusion; only 250 c.c. of blood required during the whole operation.

FIELDS OF USE

(1) Plastic surgery involving the preparation of large tube or pedicle grafts, etc. (2) Block dissection of glands and tumours in the head and neck. (3) Toxic thyroids treated with thiouracil or equivalents. (4) Radical mastectomies. (5) Neurosurgery. (6) Orthopædic surgery such as arthrodesis of hips or where largc bone grafts are taken. (7) E.N.T surgery such as fenestration, radical mastoidectomy, and extensive radical intranasal operations. (8) Control of hypertensive episodes occurring during anæsthesia.

SIGNS OF DOSAGE

As would be expected from the mode of action of these methonium salts, with the fall in blood pressure, there will be a relative tachycardia; this is most marked in young healthy adults. Due to the action on the superior cervical ganglion, there will be dilatation of the pupil and from its generalized paralysis of the autonomic system, the skin will be flushed, with the temperature raised above its preoperative level.

OTHER USES

Hexamethonium and pentamethonium are being increasingly used to treat hypertensives medically,[8, 9, 10, 11, 16] and it would appear that although it is by no means the physician's "Elixir Vitæ", many of its side effects being due to bromism or iodism, yet it might prove very beneficial as a preoperative therapy for hypertensives before surgery.

Recently, it has been advocated[16] that "Every pregnant women with toxæmia or severe hypertension, unless it is so severe as to prevent forty-eight hours' delay should be given a trial with methonium before pregnancy is terminated. In favourable cases improvement will soon be manifest and it should be possible to decide if it is safe for pregnancy to continue. The reward may well be a live child instead of a lost one."

It would be well to remember that methonium salts are excreted unchanged in the urine, and therefore that patients with impaired renal function will require smaller doses at less frequent intervals.[23]

ANTIDOTES

I have been using pentamethonium and hexamethonium now for 18 months and as yet have never needed an antidote, but it is wiser to have one at hand in case of necessity. The first treatment would be to correct posture and place the patient horizontally—this in itself stabilizes the pressure. Next, if the patient is conscious, active movements of the legs and contractions of the abdominal muscles causing more blood to be forced towards the heart. Lastly use a vasoconstrictor drug. I always have methedrine at hand and the dosage I would recommend would be 10 mgm. intravenously repeated every ten minutes as required. Ephedrine would be quite as effective, but adrenaline and nor-adrenaline are contraindicated.[17]

Adrenalin and nor-adrenalin[17, 18] by a direct action on the walls of the blood vessels cause vasoconstriction, but by their action on the sympathetic ganglia prevent impulses emitted by the vasomotor centre from reaching the vessels. So it will be seen there is a dramatic rise in pressure and an even more dramatic fall to precipitately lower levels. Other workers deny this action of nor-adrenalin and claim that it would be a safe and efficacious antidote.[21]

Posterior lobe extracts of the pituitary, however, do not act in this way, and would be quite efficacious, but posterior lobe extracts cause vasoconstriction of the coronary vessels and should be given with great care.

SUMMARY

Pentamethonium and hexamethonium have opened up a new approach to bloodless surgery, but as yet insufficient cases have been done to know whether we are benefiting mankind.

Even with our present knowledge of cross-matching blood for transfusions, reactions still occur; unfortunately under anæsthesia, transfusion reactions are masked, so that damage may result to the patient without our knowledge, and may even account for some of our unexplained deaths.

If then we can decrease blood loss sufficiently to obviate transfusions, we may indeed have done some good.

The pentamethonium and hexamethonium used in this series were Antilusin and Hexathide respectively, and are marketed by Messers Allen and Hanburys Ltd.

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LARYNGEAL PAPILLOMATA IN CHILDREN

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PAPILLOMATA are the commonest tumours of the larynx in children and although they are benign in their histological appearance, they are malignant in their rapidity of growth, their tendency to recur, their ominous sequelæ, and in many cases, their lethal termination. Jackson[1] states that these tumours are the commonest of all benign growths of the larynx. According to Crowe and Breitstein,[2] the mortality rate from papillomata of the larynx in children under five years of age exceeds that of laryngeal carcinoma in adults. In children these growths tend to be multiple and may arise from the vocal cords or the mucosa of the larynx, trachea or epiglottis. As in carcinoma of the larynx or bronchogenic carcinoma, diagnosis must be early if treatment is to prove effective.

The incidence of laryngeal papillomata in children seems to vary. Some authors report it to be approximately one case per 1,000 patients, but Ferguson and Scott[13] in reporting 15 cases over a period of nine years state the incidence to be approximately one case in 6,000 clinic children. Jackson[1] reports having treated 200 cases over a period of many years. The onset is, it appears, most frequently between the ages of fifteen months and four years, but may occur at any age. It is reported that approximately 20% of these cases are congenital. The sex incidence is apparently not definitely established nor agreed upon by authors, some authors stating it is more common in girls and others that it is more common in boys. It is interesting to note that all the cases reported by Crowe and Breitstein[2] were boys.

The specific etiology of the papilloma still remains a mystery although many theories have been advanced. In a review of the literature there is no suggestion that environment may be a factor in this benign lesion. These tumours when seen through the laryngoscope present a characteristic picture. In children, they are usually multiple, glistening, grayish-pink in colour, mulberry or cauliflower-shaped on a short stalk with a fine nodular surface, and of firm consistency distinctly papillary in structure.

The vocal cords are the most frequent site of origin, but if extensive, the anterior commissure and epiglottis are usually involved. That they may extend to the trachea and bronchi is shown by Patterson,[8] who reported a case in which bronchoscopic removal from the trachea and left bronchus was necessary. Holding[3] reported a case of extension of the growth beyond the bifurcation of the trachea, resulting in death. Aerial metastasis to the lungs does occur and was reported by Hitz and Oesterlin.[5] In their case, autopsy showed the presence of implantation metastases in the smaller bronchi and actual growth in the alveoli

The histological characteristics are a branching connective tissue stroma with abundant proliferation of squamous epithelial cells forming downward-extending pegs which do not break through the basement membrane. The cells are mature, well-differentiated epithelial cells. Mitosis, concentric cell groups and some irregularity in cellular arrangement may occasionally be seen. Keratinization of the outer layer is usually present in which varying stages of nuclear degeneration are seen. The evidence of the presence of inclusion bodies in the epithelial cells as reported in the literature has not been substantiated by Ferguson and Scott[13] in their series of cases.

The symptomatology of papillomata of the larynx is similar to that usually present in all neoplastic conditions of the larynx. Hoarseness, huskiness, harshness or some alteration of voice, even to complete aphonia, may be present. When the growth becomes obstructive dyspnœa and stridulous breathing are added to the above symptoms. Progressive hoarseness of the voice or cry is the most common early presenting symptom. Cough is not usually a feature. Asphyxia results if these lesions completely obstruct the glottic airway.

The diagnosis can only be made by a careful history and direct laryngoscopy. Age is no contraindication and no anæsthetic should be used in children. Biopsy of course should be performed in all cases. As Jackson[1] states, "The day of inferential diagnosis of laryngeal disease is past." Lateral roentgenograms of the neck, particularly laminographs, are helpful. An infant or child with any of the aforementioned symptoms presents a diagnostic problem and such laryngeal lesions as some other benign tumour, syphilis, tuberculosis, foreign body or congenital anomaly must be ruled out. This can only be done by early direct laryngoscopy.

This type of growth in children is very diffi-

cult to cure but emphasis must be placed on conservative treatment because the lesion is histopathologically benign and is self-limiting in the majority of cases. An external operation such as thyrotomy or laryngo-fissure is never justified in the treatment of papillomata of the larynx in children because of the resultant laryngeal stenosis. Imfeld[12] reporting on the postoperative control in children states that these growths are both clinically and phonetically more unfavourable in their behaviour than any other benign growth and those occurring in the first three years of life have a graver prognosis because of their frequent recurrences and anatomical extensions.

It is well established that there is a great tendency of these growths to recur following surgical removal, but they usually disappear at puberty or before, regardless of treatment. Broyles[9] has called this active period the "juvenile phase", during which the growth repullulates until the process is burned out. In this latter stage complete removal usually effects a cure.

The average duration of the disease as reported by Ferguson and Scott[13] was three years. The age incidence has been mentioned previously, but McDougal and Wright[4] recorded a case in which the diagnosis of multiple papillomata of the larynx was not established until the patient was 19 years of age and apparently they had been present for six years. In reviewing the literature, the most remarkable case was that presented by Lejeune[10] in which the papillomata persisted for 21 years and terminated fatally with the development of an epidermoid carcinoma of the larynx. This patient had had all methods of treatment available, including 97 surgical procedures.

The treatment of papillomata of the larynx in children has proved universally unsatisfactory as evidenced by the many therapeutic measures. No single method has proved to be the panacea for this condition. Chemical caustics such as silver nitrate, nitric acid and many more have been used in the past but they have been of no benefit, nor is subcutaneous testosterone satisfactory.

New[16] cites the expectant treatment of McKenzie who in 1901 advocated tracheotomy on all cases instead of treating the papillomata and thus provide an airway until the growths had burned themselves out. Most authors agree that tracheotomy is not necessary unless there are signs of obstruction but it would appear that it is necessary in a high percentage of cases. Ferguson and Scott[13] tracheotomized nine of their fifteen cases and Crowe and Breitstein[2] ten of their eleven reported cases. Unless these cases can be kept under close surveillance drastic sequelæ may follow.

Fulguration or electro-coagulation of the growth has been practised by some clinics, but most authors feel that this is a radical form of treatment because of the resultant damage to the vocal cords and laryngeal cartilage. Jackson[1] states that it is fatal to cauterize the base of these

Fig. 1

growths when the origin is from the surface epithelium.

The use of x-ray or radium in the treatment of these lesions has been successful in the hands of several writers. New,[16] reporting in 1921, using extra laryngeal and endolaryngeal radium had 11 out of 17 cases entirely free from papillomata following this treatment. He attributed his success to the use of the radium under direct vision and keeping it in motion while in the glottis. Foster also concludes from his series of cases that most, if not all, primary cases of papillomata of childhood are amenable to proper radiotherapy. Hollinger,[15] as well as many other authors, feels that such treatment, while removing the papilloma, will prevent further growth of the larynx and its probable stenosis or destruction will develop.

Broyles[9] in 1941 reported five cases of papilloma of the larynx in children treated locally by an œstrogenic hormone. He used amniotin. An estimated 1,000 international units was applied at each treatment. He reports that the characteristics of the growth were changed from the infantile to the adult type. To effect a cure required a six month period of treatment. He maintained also that this made surgical treatment more satisfactory. Broyles'[9] methods have not proved so successful in the hands of other writers. Zaline[14] of Liverpool reported considerable success in three cases with the use of dimenformon.

It would appear from the literature that the method of choice in the treatment of laryngeal papillomata in children is repeated endolaryngeal excision using biting forceps flush with the adjacent mucosal surface. Excisions are carried out as often as their recurrence demands. Whether one uses suspension laryngoscopy or not is a matter of individual choice. Ferguson and Scott[13] perform most of their excisions under general anæsthesia.

I present the following case because it is the only one I have seen at this age, and there are so many conflicting opinions in the literature, as well as in this case, as to the most effective method of treatment.

CASE REPORT

S.F., a white female child, age 2 years, was referred by a pædiatrician because of aphonia, dyspnœa and cyanosis and some vomiting. These symptoms had been present since the child was 6 months of age and were becoming progressively worse. On admission to hospital, physical examination showed her to be a pale, thin, cyanotic child who was obviously quite ill. Her temperature was 100° per rectum, pulse rate was 140 and respirations were 42. There was aphonia with some inspiratory stridor and chest retraction. There were diminished breath sounds throughout the chest.

Direct laryngoscopy showed multiple cauliflower growths throughout the whole larynx. The glottic chink was patent but no vocal cord detail could be made out. No attempt was made at removal at this time due to the patient's extreme dyspnœa and cyanosis. The following day, under intratracheal anæsthesia, a tracheotomy was done and numerous papillomata removed with cup forceps. There was considerable hæmorrhage during the procedure. The initial pathological report was that of papillomatous epidermoid carcinoma. In view of this, a barium examination of the œsophagus was done which showed displacement of the trachea and œsophagus to the left suggesting extrinsic involvement, and it was decided to commence radiotherapy at once. I could find no record in the literature of a carcinoma of the larynx in so young a child, so corresponded with Dr. Hollinger[15] of Chicago and Dr. New[16] of the Mayo Clinic, sending further specimens to the former for his opinion. Benign papilloma was the final diagnosis so radiotherapy was discontinued after eleven treatments. There had been no change in the character or extent of the growth.

Two months after admission the child developed measles and bilateral bronchopneumonia and was isolated, during which time she received no treatment. She made an uneventful recovery under the usual chemotherapeutic and antibiotic therapy.

Following the above episode, four further surgical removals of the tumour were performed at weekly intervals but each time the growth appeared the same, probably a little more profuse. Direct application of amniotin in oil as recommended by Broyles[9] was done as well as spraying the larynx with the above preparation between treatments. I felt I was fighting a losing battle but resolved to continue surgical excision as often as possible. It was quite obvious that these papillomata were in the juvenile phase as described by Broyles.[9] There was subglottic extension of the lesion three months following admission requiring bronchoscopic removal of these tumours on two occasions.

All the treatment she had received proved to no avail. Her tumours continued to increase in extent, her airway through the tracheotomy tube was proving very adequate and there was no sign of any extension below the tube level or around the tracheotomy wound. However, six months after admission, one morning she was found dead in bed. There was no sign of there having been any struggle to suggest asphyxia.

Postmortem examination ordered by the coroner showed involvement of the epiglottis and extension for 1.5 cm. down the œsophagus and for 2 cm. below the vocal cords into the trachea. The lungs were filled with a thick viscid mucus but showed no sign of any metastatic tumour involvement. Death was, in all likelihood due to asphyxia and although not stated by the pathologist, was probably due to collapse of the larynx and trachea or sudden blocking of the tracheotomy tube from the papillomatous growth.

SUMMARY

A review of the literature and a case of papillomatosis of the larynx with fatal termination are presented.

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METABOLIC EFFECTS OF THE ADMINISTRATION OF GROWTH HORMONE TO A PANCREATECTOMIZED INDIVIDUAL*

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A GROWTH-PROMOTING material, extracted from the anterior lobe of the pituitary gland, was first shown to produce diabetes in normal animals by Evans[1] and his colleagues in 1932. This observation has been confirmed by Young[2, 3, 4] and others.[5] We, therefore, decided to treat with a purified pituitary growth hormone, a patient who continued to exhibit lowered blood sugars following what is believed to be a total pancreatectomy for islet cell adenomata.

CASE HISTORY

The patient, a 43 year old dentist, first developed attacks of nervousness and the acute onset of fatigue associated with profuse sweating while serving overseas with the Canadian Army in 1944. Shortly after this, a solitary adenoma was removed from the tail of his pancreas. Histological examination showed this to be an islet cell adenoma. He was well until 1949 when there was a return of symptoms. In May of 1950 the distal third of his pancreas and the spleen were resected. Histological section revealed several adenomata of islet cell type in the resected pancreatic tissue. Following a stormy convalescence, he suffered a recurrence of symptoms in November 1950. Lowered blood sugars were frequently observed. A course of cortisone of 100 mgm. daily for one month was without effect on the course of his illness. In April of 1951 the pancreas was again explored by Professor Rocke Robertson and the remaining portion removed. Careful search failed to reveal any discrete lesion, though dense scar tissue at the site of the previous operation at the tail of the pancreatic bed rendered satisfactory exploration of this area impossible. Histological examination of the entire pancreas by serial section disclosed no abnormality in islet tissue, nor in the proportions and staining qualities of either alpha or beta cells.

Following operation, the patient continued to run blood sugars between 60 and 70 mgm. % (Folin Wu method). Occasional blood sugars between 40 and 50 mgm. % were observed. Some two months following the operation he was admitted to the Clinical Investigation Unit and the studies to be reported were undertaken. During the period of study he received pancreatic extract by mouth. This controlled diarrhœa, although, as will be seen, steatorrhœa persisted.

EXPERIMENTAL DATA

The patient was placed on a metabolic balance. The urinary and fæcal excretion of nitrogen, sodium, chloride, potassium, calcium and phosphorus were measured and the excretion of fæcal fats, both split and unsplit, were also determined. During the period of study he remained on a relatively constant diet with regard to calories and composition; every meal was of equal caloric value, the exact totals being determined for each individual metabolic period. Blood sugars were estimated three times each day; fasting, before lunch and two hours after lunch.

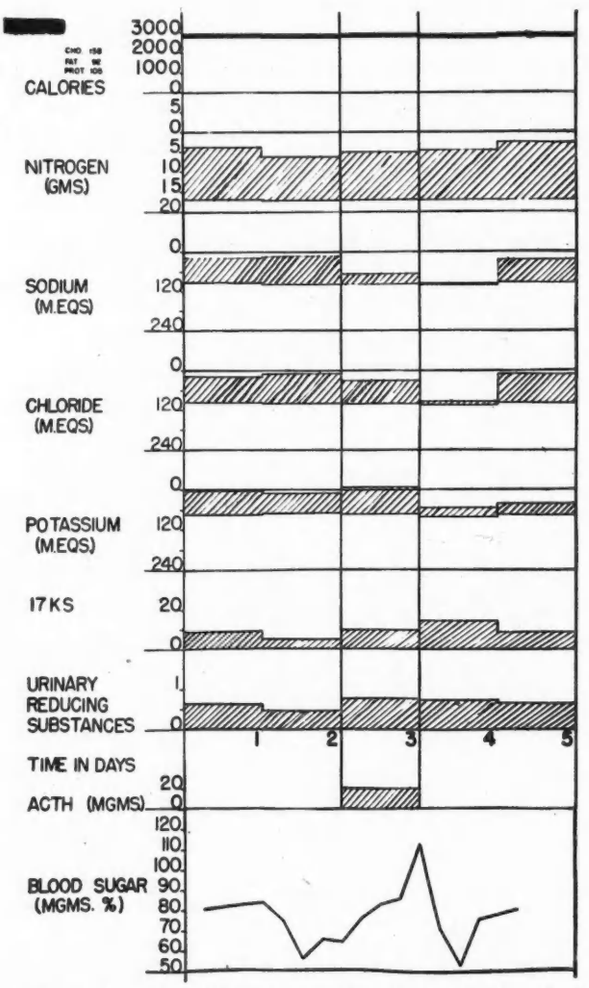

Fig. 1.—Results obtained with the administration of 20 units of ACTH by continuous intravenous drip over a twenty-four hour period. (one day metabolic periods).

Following a two-day control period, the patient received 20 units ACTH by continuous intravenous drip over a 24 hour period. This was administered in 1,000 c.c. of hypotonic saline solution. The results are shown in Fig. 1. The data are charted in the standard balance method after Albright. The intake is measured down from the zero line and the output built up above this so that a positive balance is represented by a clear space below the zero line and a negative balance by a shaded area above the

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zero line. It will be seen that there is no change in the status of the nitrogen balance but that there is a marked retention of sodium and of chloride on the day of administration of ACTH and for the following 24 hours. There was an appreciable rise in the 17-ketosteroid excretion during the period of administration and again on the following day. The most striking change was a gradual increase in the level of the blood sugars which reached a peak of 120 mgm. % at the point where the ACTH was discontinued. There was a subsequent rapid decline in the level over the following 24 hours.

Two weeks later the patient was started on another balance study, the results of which are shown in Fig. 2. On this occasion, urine and fæces were collected for a three day period. Estimates of the content of nitrogen, fat, sodium, chloride, potassium, calcium and phosphorus were again determined and frequent estimations of blood sugar were performed. After two three-day control periods, the patient received Somatrofin (Horner) 25 mgm. by intramuscular injection every six hours, for a period of nine days. The contents of each vial of 25 mgm. of this material were suspended in 1 c.c. of distilled water and administered into the buttocks. This material has been assayed by the manufacturer with regard to growth activity, using the tibia method of Li *et al.* The result of assay at three different levels in groups of twelve rats, indicated that there is no difference between this material and the electrophoretically-pure preparation of Li. ACTH contamination was less than 0.25% USP Reference Standard ACTH. Thyrotropic contamination was 0.1 to 0.2 U.S.P. units per mgm.

Gonadotrophin assays showed very slight contamination with this material and prolactin assays showed that 15 mgm. of Somatrofin contain less than 1 international unit. There was no detectable contamination with pressor or oxytocic principles at a 10 mgm. level.

The results of the study, shown in Fig. 2, demonstrate that there is a loss of weight of eight pounds during and immediately following administration of growth hormone. There was no detectable increase in urinary volume nor could the weight loss be accounted for on the basis of increase in stool weight. The patient was afebrile; there was no rise in the pulse rate and no reason for assuming an increase in the insensible water loss.

During the period of administration of growth hormone, there was the development of a strikingly negative nitrogen balance. There was no detectable change in the fæcal fat, in the sodium, chloride, potassium, calcium or phosphorus balance. The blood sugars and the 17-ketosteroid excretion remained essentially unchanged. There

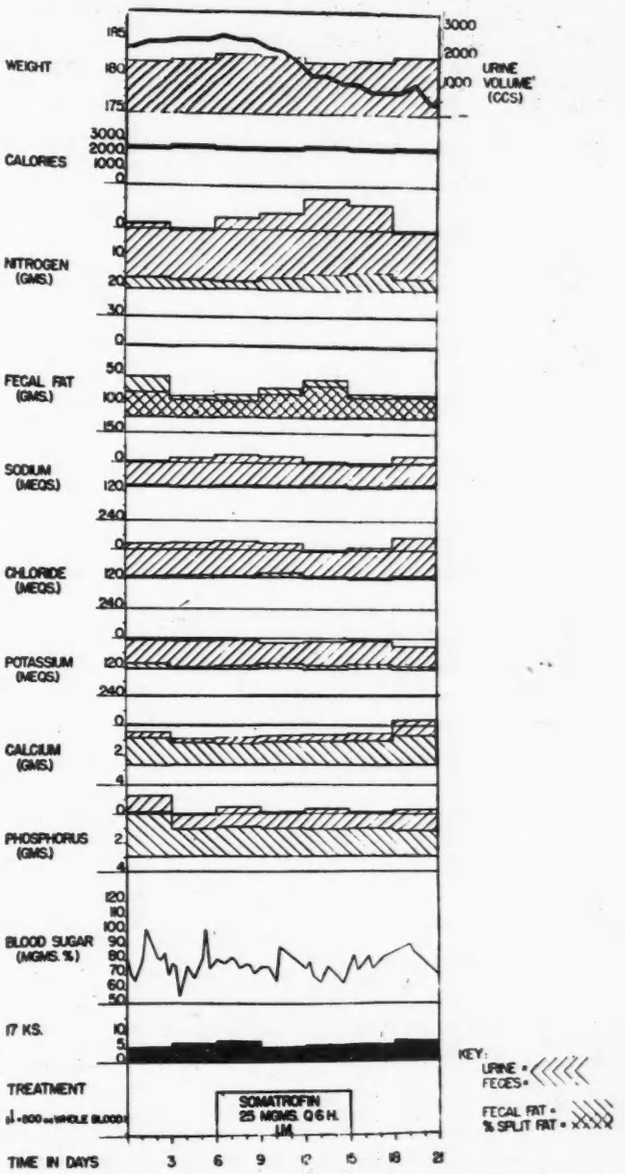

Fig. 2.—Results obtained during the administration of Somatrofin by intermittent intramuscular injection over a nine day period (three day metabolic periods).

was no change observed in the hæmoglobin, WBC, differential, eosinophil count or prothrombin activity and determinations of the carbon dioxide combining power, NPN, serum sodium, potassium, calcium and chloride, total proteins, albumin, globulin and cholesterol revealed no alterations. Serum phosphorus in the control period was 4.1 mgm. %, after six days

3.9 mgm. %, and at the completion of treatment the serum phosphorus had returned to 4.1 mgm. %. An effort was made to determine whether the nitrogen loss was sufficient to account for the decrease in weight. In Fig. 3 are shown the actual and calculated weight loss during the administration of the hormone. The calculated loss is estimated by multiplying the grams of nitrogen loss by 6.25 and 27, respectively. It will be seen that this can account for only one-half to two-thirds of the actual weight lost. No measurements were made of the ketone bodies in the blood or urine.

Discussion

Previous attempts have been made to control hyperinsulinism by the injection of extracts of the anterior pituitary gland. In 1945 Conn and Louis[6] treated two such patients with crude pituitary extracts and observed further lowering

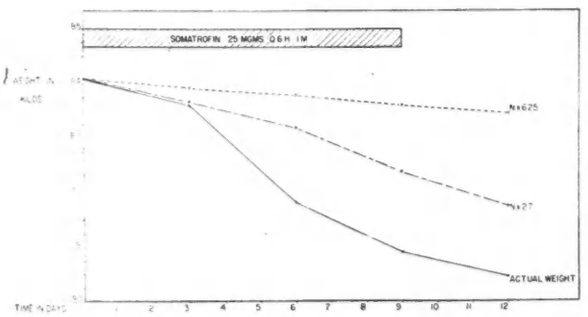

Fig. 3.—Actual and calculated weight loss on the basis of the nitrogen balance during the administration of Somatrofin.

of the blood sugar. Graham and Oakley, in 1950,[7] reported temporary clinical improvement in a woman with hyperinsulinism treated with crude anterior pituitary extract, but no alteration occurred in the glucose tolerance test. Recently, Black and others[8] reported the trial of growth hormone treatment in a patient with hyperinsulinism due to an islet cell adenoma. They were able to observe a reduction in the carbohydrate intake required to prevent hypoglycæmia, a slight overall rise in the blood sugar level, or a well marked but transient rise when glucose supplements were standardized. In addition they noted a weight loss despite increased caloric intake which could not be accounted for on the basis of fluid loss. This observation is of interest in view of our findings. The data presented would suggest that approximately one-half to two-thirds of the weight loss can be accounted for on the basis of protein breakdown. There is no suggestion of increased fluid loss and it would seem, therefore, that the remainder of the weight loss must be due to loss of fat, muscle glycogen or both. Though there is no direct evidence on this point, it would be impossible for the loss of glycogen to account for as much weight loss as occurred.

It has been suggested by Selye[9] that in rats the pituitary growth hormone stimulates the production of mineralo-corticoids. In addition, Batts and Bennett[10] have demonstrated a retention of sodium and an increase in the thiocyanate space of rats treated with growth hormone. Our data support the conclusion, however, that in the dosage employed, the growth hormone we used does not affect the overall electrolyte balance in man.

No significant change occurred in the blood sugar levels during or after therapy in our patient. This finding is difficult to interpret. A difference of opinion exists as to the ultimate means whereby growth hormone produces diabetes in experimental animals. Young[11, 12] believes that there is an exhaustion atrophy of the islet cells as a result of a greatly increased demand for insulin initiated by the injection of growth hormone. Anderson and Long,[13] on the other hand, attribute the diabetogenic effect to inhibition of insulin secretion by growth hormone. Bornstein and his colleagues[14] suggest that there is stimulation of the alpha cells with increased secretion of a hyperglycæmic factor. The fact remains, however, that growth hormone is still strongly diabetogenic in the total absence of the pancreas in experimental animals.

In our pancreatectomized patient, ACTH administration induced a rise in the blood sugar, whereas no effect was noted with growth hormone. This might be taken to suggest that in man the hyperglycæmic effect of growth hormone, if such really exists, is mediated through the pancreas. This conclusion, however, can only be tentative in view of the uncertainty as to whether there remains some pancreatic tissue in the densely scarred area at the tail of the pancreatic bed. In any case, the paradoxical nature of our observation leads us to agree with the sentiment that growth hormone is a frustrating material with which to work in man.

Summary

Data has been presented pertaining to the administration of a purified growth hormone

(Somatrofin-Horner) to a patient following what is believed to have been a total pancreatectomy. The most notable findings were weight loss, the production of a negative nitrogen balance, a fall in the level of the serum inorganic phosphorus and the absence of any effect on the overall electrolyte balance or blood sugar levels. The possible significance of these findings is discussed.

The authors wish to thank Dr. L. Mitchell of the Horner Co. for the supply of Somatrofin.

The technical assistance of Mr. J. Phinney, Miss M. E. Saunders, Mr. A. Beaton and Miss D. Hamilton of the laboratory staff is most gratefully acknowledged.

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BRONCHOGENIC CARCINOMA*

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THE INCIDENCE of bronchogenic carcinoma has been increasing rapidly in recent years in both sexes, and in males it is now the most frequent form of malignant disease. It is variously quoted as six to twenty times as common in males as in females. In spite of medical, x-ray or surgical treatment, in even the most optimistic reports, the average length of survival after diagnosis has been very short. Frequent examination of the sputum for tumour cells would, it was hoped, lead to earlier diagnosis, increasing thereby the opportunity for operation and possible cure.

The present review was originally undertaken to determine what advantages this added diagnostic weapon afforded in the investigation and diagnosis of this disease. It was subsequently enlarged to include all cases of bronchogenic carcinoma diagnosed in Sunnybrook Hospital, whether or not examination of sputum for tumour cells had been done. Cases in this report include all patients in which the provisional or final diagnosis at discharge or death was bronchogenic carcinoma, during the two year period November 1, 1949, to October 31, 1951. This period was chosen as it marks the beginning of the cytological examination of the sputum on a large scale in this institution. Because this is a veterans' hospital, it is not surprising that 100% of the cases were male. All cases have been followed up to November 1, 1951.

The sputa were collected in Bouin's fixative, a block of it treated as a surgical specimen in the routine way, and paraffin sections prepared. Five sections were taken from each block, stained with hæmatoxylin and eosin and examined for tumour cells. Direct smears were occasionally used on bronchial aspirations when the material submitted was too small to be used as a block.

1. From November 1, 1949, to October 31, 1951, there were 114 veterans who were discharged from, or died in, Sunnybrook Hospital with the clinical diagnosis of bronchogenic carcinoma. Of these, sputum studies were done on 85. The results are shown in Table I.

The sputum examination was positive in 47%, and positive or suspicious in 60% of the cases in which the examination was done. Frequently, multiple specimens of sputa had to be examined before a positive cytological diagnosis could be made. These cases were reviewed as to their clinical course with the following results:

TABLE I.

Positive	40
Suspicious	11
Negative	34

*From the Department of Pathology and Department of of Veterans' Affairs, Sunnybrook Hospital, Toronto.
From the Pathology Laboratory, Sunnybrook Hospital, Department of Veterans' Affairs, Toronto.

TABLE II.

POSITIVE SPUTUMS—40 CASES		
Dead		38
Alive		2
Proved		30
Autopsy	19	
Operation	8	
Biopsy	3	
Provisional diagnosis and dead		10
False positives		0

TABLE III.

DURATION OF LIFE AFTER FINDING POSITIVE SPUTUM	
Average	5.4 months
Shortest	0.5 "
Longest	18.0 "

Of the 2 living one is alive 25 months after a pneumonectomy, but his sputum is again positive for tumour cells as a result of a recurrence in the operative stump; the other has no signs of recurrence 6 months after a lobectomy.

TABLE IV.

SUSPICIOUS SPUTUMS—11.			
Dead	10	Proved 7—Autopsy	5
		Biopsy	1
		Operation	1
		Provisional diagnosis and dead	3
Alive	1	Provisional diagnosis and alive	1

TABLE V.

FALSE NEGATIVE SPUTUM—34			
Dead	28	Proved 24—Autopsy	21
		Biopsy	3
		Provisional diagnosis	4
Alive	6	Provisional diagnosis	5
		Proved	1 (operation).

2. The results of sputum examinations were also compared with other forms of special examination.

TABLE VI.

BIOPSY FROM BRONCHOSCOPIC EXAMINATION—21		
Positive and sputum positive		8
" " "	questionable	1
" " "	negative	5
" " "	not done	3
Negative and sputum positive		2 (1 not proved).
" " "	negative	1
" " "	not done	1

TABLE VII.

BRONCHOSCOPIC SUCTION—20		
Positive and sputum positive		1
" " "	not done	3 (2 not proved).
Questionable and sputum not done		1
Negative and sputum positive		7 (3 not proved).
" " "	questionable	1 (not proved).
" " "	not done	1
" " "	negative	6

TABLE VIII.

PLEURAL FLUID—5		
Positive and sputum positive		1
" " "	not done	2
" " "	negative	2 (1 not proved).

TABLE IX.

BIOPSY FROM OTHER TISSUES AS THE ONLY SPECIAL PREMORTEM EXAMINATION—8			
Lymph nodes	2	—axillary	1
		—cervical	1
Skin	2		
Subcutaneous nodule	1		
Rib	1		
Brain	1		
Liver	1		

3. In 22 patients the diagnosis was not suspected clinically, but found "incidentally".

TABLE X.

"UNSUSPECTED" FINDING—22	
A: Clinically—15	
Examined for other conditions	10
Being followed for tuberculosis	3
Chest survey films	2
B: At autopsy—7.	

4. Of the 114 cases of bronchogenic carcinoma in the series, as of November 1, 1951, 101 are dead and 13 are alive.

TABLE XI.

OF THE LIVING		
Proved—5	Biopsy	1
	Operation	4
Provisional diagnosis and being followed		8

Of the 101 who are dead 71 were autopsied. During this two year period, there were 671 autopsies. Of these (excluding occult carcinoma of the prostate) malignant tumours were found in 241 cases. Over this period of time, bronchogenic carcinoma was found in 10.6% of all cases

autopsied and comprised 29.5% of all malignancies. Its relationship to other tumours is illustrated in Table XII.

TABLE XII.

Bronchogenic carcinoma	71	
G.I. tract (œsophagus to rectum)	79	(stomach 29).
G.U. tract	37	
Brain	14	
Miscellaneous	38	
Primary site unknown	2	
	241	

5. Other points that might be of interest are reviewed in the following tables.

TABLE XIII.

AGE
AVERAGE—62.4 YEARS
RANGE—44 TO 76 YEARS

Age	*Number of cases*
0 to 40	0
41 to 45	1
46 to 50	6
51 to 55	18
56 to 60	21
61 to 65	30
66 to 70	20
71 to 75	13
76 to 80	5
Over 80	0

TABLE XIV.

TYPE OF TUMOUR AT AUTOPSY

Total	72	There were 2 separate primary bronchogenic carcinomas in 1 case.	
Anaplastic	41	Oat cell	22
		Squamous	9
		Adeno.	10
Moderately to well differentiated	31	Squamous	20
		Adeno.	11

TABLE XV.

SITE OF ORIGIN

Right lung	45	Main bronchus	15
		Upper lobe bronchus	16
		Middle lobe bronchus	3
		Lower lobe bronchus	11
Left lung	27	Main bronchus	7
		Upper lobe bronchus	17
		Lower lobe bronchus	3

TABLE XVI.

CAUSE OF DEATH

Primarily due to the carcinoma	66
Primarily due to other causes	5

TABLE XVII.

CHEST COMPLICATIONS

Bronchopneumonia	38		
Atelectasis and collapse	26		
Abscess of lung	13		
Pleural effusions	8		
Hæmoptysis (massive)	4		
Fistulæ	4	stump to skin	2
		broncho-pleural	1
		broncho-œsophageal	1
Postoperative recurrence	3		
Empyema	2		
Invasion of pulmonary vein	1		
Bronchiectasis	1		
Extensive interstitial fibrosis	1	(received extensive radiation).	

TABLE XVIII.

ASSOCIATED LUNG DISEASE

Chronic bronchitis and emphysema	22
(Chronic bronchitis and emphysema in the 1st 71 consecutive autopsy cases beginning November 1st, 1949)	(21)
Tuberculosis—inactive	3
—active	1
(Peptic ulcers)	(5)

TABLE XIX.

COMPLICATIONS BY DIRECT EXTENSION

Fibrinous pericarditis	14	(2 with effusions).
Œsophagus	2	
Left recurrent laryngeal	2	
Compression of superior vena cava	2	
Invasion of ribs	2	
Invasion of vertebral canal	1	(produced paraplegia).
Pancoast syndrome	1	

TABLE XX.

METASTASES

Sites of spread	*Anaplastic* — *Oat cell, squamous cell and adenocarcinoma (41)*	*Moderate to well filled differentiated* — *Squamous (20)*	*Adeno. (11)*	*Total (72)*
Lymph nodes: regional	34	10	10	54
cervical	9	1	2	12
abdominal	11	2	3	16
axillary	1			1
inguinal	1			1
Liver	26	4	4	34
Adrenal Total	19	2	4	25
(Both)	(11)	(1)	(3)	
Bone	16	4	3	23
Brain	13	2	5	20
Kidney	14	2	2	18
Lungs	9	1	1	11
Diaphragm	6	2	2	10
Pancreas	6		3	9
Spleen	2		2	4
Peritoneum	1		1	2
Meninges			2	2
Thyroid	2			2
Heart		1		1
Spinal Cord	1			1
Prostate	1			1
Pituitary	1			1
Totals	173	31	44	248
Average number per case	4.8	1.5	4.0	

TABLE XXI.

CASES WHERE NO METASTASES FOUND AT AUTOPSY—9	
Anaplastic with P.O. recurrence in stump	1
Squamous cell type	8

Of which one had died 1 month post-operative, another was found in association with Hodgkin's disease, and a third in association with an anaplastic bronchogenic carcinoma.

TABLE XXII.

CASES IN WHICH THE BRONCHOGENIC CARCINOMA WAS NOT THE MAJOR CAUSE OF DEATH—5

Associated with other malignant tumours		2
carcinoma of tongue	1	
Hodgkin's disease	1	
Associated with acute periarteritis		1
Associated with arteriosclerotic heart disease		1
Associated with active pulmonary tuberculosis		1

TABLE XXIII.

LENGTH OF TIME

Type of tumour	*With symptoms before diagnosis*	
Average	7.7 months	
Anaplastic	6.1 "	(½ to 24)
Squamous	10.0 "	(1 to 48)
Adeno	8.0 "	(1½ to 19)
Type of tumour	*After diagnosis to death*	
Average	4.7 months	
Anaplastic	3.7 "	(¼ to 17)
Squamous	7.0 "	(1 to 35)
Adeno	4.0 "	(¾ to 7)

TABLE XXIV.

RESULTS OF OPERATION

(A) Inoperable.... 93
Operable..... 21

(B) Operable but not resectable... 13
(1) Type Anaplastic..... 3
Squamous..... 5
Type not determined..... 5
(2) Duration of symptoms before operation.
Shortest—incidental finding (1)
Longest—48 months
Average—11.4 months
(3) Survival after operation.
Dead 12—Shortest.... 1 month
Longest.... 21 months
Average....6.3 months
Alive 1—(4 months so far).

(C) Operable and resectable—8.
(1) Type Anaplastic.... 2
Squamous.... 6
(2) Duration of Symptoms before operation.
Shortest—incidental finding (3)
Longest—48 months
Average—8.5 months
(3) Survival after resection.
Dead 5—Average 7.4 months.
Alive 3—with recurrence 2 (26 and 35 months).
with no evidence of recurrence 1
(6 months).

SUMMARY AND CONCLUSIONS

1. Of 114 cases of bronchogenic carcinoma diagnosed in Sunnybrook Hospital between November 1, 1949, and October 31, 1951, 101 had died and 13 were still alive as of November 1, 1951.

2. The average age of the 114 cases was 62.4 years compared with the usual age of 56[1] or 55[2] in other groups.

3. Of the 114 cases, for a variety of reasons (associated diseases, metastases, extent of local spread, refused operation, etc.) 93 were considered inoperable, 21 operable, of these 21 operable cases, only 8 proved resectable.

4. In the whole group, the average duration of symptoms before diagnosis was established was 7.7 months, and the average survival time after diagnosis of the 101 who died was 4.7 months.

5. In the small group who were operable but not resectable (13), the average duration of life after operation was 6.7 months, and only 1 is still alive. In the even smaller group that were operable and resectable (8), 3 were still alive at 6, 25 and 33 months after operation, and 5 had died. Of the resected group still alive, the last 2 had recurrences in their operative stumps. Of the resected group who had died, the average duration of life was 6 months.

6. Only one case had a chance of cure, and he was operated upon 48 months after the onset of symptoms.

7. Of the various histological types of bronchogenic carcinoma, the low grade squamous cell tumour tends to remain a localized growth and offers the best prognosis and chance of operative removal and cure.

8. Examination of the sputum was a valuable aid in the diagnosis, being positive in 47% and positive or suspicious in 60% of the cases in which the examinations were done. There were no false positives. Because of the technical limitations of the procedure, it is doubtful if the 60% can be much improved.

9. The finding of a positive sputum is of serious import and does not alter the general outlook. Of the 40 cases in which positive sputa were obtained, only 2 were alive at the time of writing. These 2 came to operation and were

resectable, but one of these has subsequently developed a recurrence in the operative stump.

10. In the presence of a provisional clinical diagnosis of bronchogenic carcinoma, a single negative sputum is of no diagnostic significance and repeated examinations are indicated.

11. The prognosis in bronchogenic carcinoma in this group over this 2 year period was found to be almost invariably fatal and relatively unaffected by either earlier diagnosis or treatment.

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FEBRILE REACTIONS TO PARA-AMINO-SALICYLIC ACID (PAS)*

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THE CHIEF TOXIC EFFECTS of para-amino-salicylic acid encountered in the course of the treatment of pulmonary tuberculosis are nausea, vomiting and diarrhœa. These toxic effects seem to occur more frequently in patients being given PAS in tablet form than in those being treated with the drug in powder form. They also seem to be more prone to occur in patients being given large doses of PAS. Instances of slight liver damage, as evidenced by liver function tests, and slight renal irritation, as shown by crystalluria, have been reported by a few investigators. Recently febrile reactions have been found to be one of the toxic effects of PAS therapy.

During the years 1950 and 1951, up to September of the latter year, 590 patients in the Royal Edward Laurentian Hospital were given courses of PAS, with or without concomitant streptomycin therapy. Six of these patients showed unequivocal febrile responses to PAS. This gives an incidence of febrile reactions to PAS of approximately 1%.

These patients were given PAS in doses of 10 to 15 grams daily. The majority of the patients received 12 grams, in three divided doses, daily. The febrile reactions to PAS noted in six of the patients in the group under review occurred a few weeks after this form of therapy was started. In two or three of the patients in whom they occurred they were, at first, thought to be due to complications of tuberculous etiology or possibly to streptomycin therapy. Close observation of patients on PAS therapy showed that this form of medication can actually be responsible for febrile reactions in a certain number of persons.

The findings in the six patients in whom febrile reactions to PAS occurred are briefly as follows:

CASE 1

L.L., 44 years of age, single, a clerk, had bilateral far advanced pulmonary tuberculosis with cavitation. She was given various form of temporary collapse therapy between February 1948 and November 1949, seemingly with little beneficial effect. She was started on streptomycin, 2 gm. every third day, and PAS 12 gm. daily, on November 18, 1950. Approximately 24 days later, on December 12, she broke out in a maculo-papular rash, which was very itchy, and her temperature rose to 101°. Streptomycin was immediately discontinued. Her rash failed to subside. Her temperature remained elevated, fluctuating between 98 and 104°, in spite of cessation of streptomycin therapy and a trial of antihistamine therapy. Eleven days later it was decided to test the effect of withholding PAS. Her temperature dropped to normal immediately following its discontinuance. Her rash also disappeared, albeit more gradually.

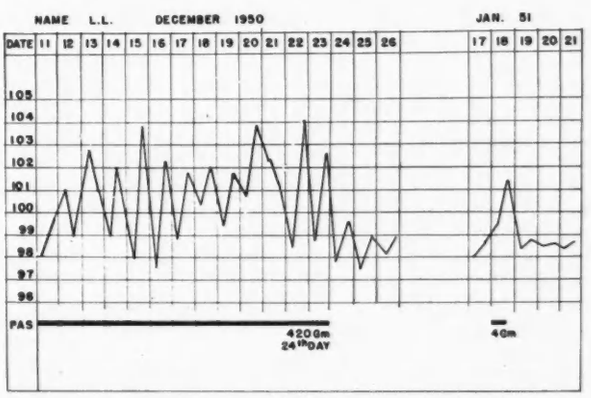

Fig. 1

In early January this patient consented to take a test dose (4 gm.) of PAS. A few hours after taking this test dose, she began to feel chilly and broke out in an intensely itchy generalized maculo-papular rash. Her temperature rose to slightly over 101°. The latter returned to normal within a few hours, the rash gradually disappeared in the following two or three days.

CASE 2

F.K., a labourer, was admitted, with bilateral far advanced pulmonary tuberculosis with a cavity in his left upper lobe, on February 10, 1950. His treatment

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included streptomycin, in a total amount of 60 gm., between February 25 and May 12, 1950; dihydrostreptomycin, in a total amount of 42 gm. between September 18 and October 29, and a third course of streptomycin combined with 12 gm. of PAS daily which was started on November 4. Streptomycin therapy was discontinued on December 1. PAS therapy, however, was continued. On December 11, approximately 37 days after the institution of PAS therapy, his temperature suddenly rose to 104°. Detailed examinations failed to disclose any evidence of significant change in his pulmonary tuberculosis. PAS, in consequence, was discontinued. His temperature promptly returned to normal. A week later he agreed to take 12 grams of PAS, in three divided doses, to test the effect thereof. His temperature promptly rose to about 103°, then, in the course of a few hours, returned to normal.

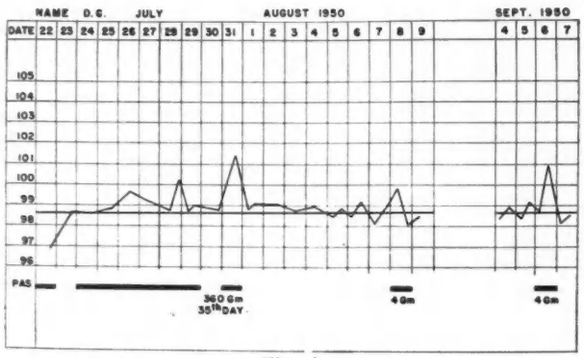

Fig. 2

CASE 4

N.C., was admitted to hospital on October 23, 1950 with moderately far advanced pulmonary tuberculosis. A left-sided pneumothorax was instituted on November 9. Streptomycin and PAS therapy was started on November 21. On December 3, approximately 13 days after streptomycin and PAS therapy was started, her temperature which had been normal since her admission to hospital, suddenly rose to 101.2°. At the same time she began to experience nausea. Her skin also became itchy; and, in the course of a few hours, she broke out in a macular rash. PAS was withheld on December 7. Her temperature promptly returned to normal and her skin manifestations subsided. She was given PAS again on December 10 with the result that her temperature rose to 100.4° and a macular, itchy, rash once again appeared on her skin.

Although knowing that she might have an unpleasant time as the result of taking PAS, this patient kindly agreed in early 1951 to take a small quantity of PAS so that certain studies on her urine and blood could be carried out during her febrile response to this drug. She was given 1 gm. of PAS, by mouth, at 6 o'clock on the morning of March 24. Fifteen (15) minutes after swallowing this she began to have aching pains in both of her legs and in her lower back. These aching pains became increasingly severe until the 3rd hour following ingestion of PAS. She began to feel "hot in the face" about 2 hours after taking it. Her temperature attained a peak of 101° within 5 hours. As her temperature reached its peak she began to feel itchy and her skin broke out in an erythematous rash. She also began to experience some nausea shortly before her temperature reached 101°. Specimens of urine were collected, and examined, immediately before this patient took PAS and approximately 4 hours after its ingestion. Examination of these specimens revealed nothing of note. Hæmograms and calcium determinations, were made at intervals during the fourteen hour period following ingestion of PAS. One hæmogram was made, the following morning. Examination of the hæmograms (Table I) shows that the total leucocyte count increased, attaining a peak a few hours after the patient's temperature reached its highest point. The increase in the leucocyte count appears to have been due to an increase in polymorphonuclear leucocytes. The eosinophiles showed no change of note. The calcium levels (Table I) were probably low during the 10-hour period following ingestion of PAS. Calcium level determinations, made on this patient on April 11 and 13 when she was not taking PAS, gave readings of 10.50 mgm. % and 9.75 mgm. % respectively.

TABLE I.

CASE N.C.

	Blood				Differential								
Date	*SR*	*VPC*	*WBC*	*HGB*	*M*	*Y*	*IM*	*LL*	*SL*	*M*	*E*	*B*	*Ca*
March 23, 1951	21	44	5,500	12.6 g.	51	2	..	12	34	..	..	1	8.65
March 24, 1951													
8 a.m.	22	42	7,000	12.6	67	7	..	3	22	..	1	..	7.80
12 noon	33	42	8,400	12.3	82	5	..	3	10	..	..	..	8.10
4 p.m.	22	42	16,050	11.6	85	6	..	2	6	1	..	..	7.90
8 p.m.	26	41	11,200	11.95	64	2	..	8	26	..	..	..	9.20
March 25, 1951													
8 a.m.	33	42	8,350	12.3	35	4	..	7	46	3	5	..	

SR—Sedimentation rate
VPC—Volume of pack cells
M—Mature polymorphonuclear leucocyte
Y—Young polymorphonuclear leucocyte
IM—Immature polymorphonuclear leucocyte
LL—Large lymphocyte
SL—Small lymphocyte
M—Monocyte
E—Eosinophil leucocyte
B—Basophile leucocyte
Ca—Calcium

CASE 3

D.G., 26 years of age, a housewife, was known to have pulmonary tuberculosis since 1944. She took the cure at home for a time, regained a measure of health, but suffered a relapse in 1948. A left-sided pneumothorax was tried in June of the same year. This had to be discontinued because of inoperable adhesions. She was started on a course of dihydrostreptomycin and PAS on June 23, 1950. Streptomycin therapy was discontinued on July 21, after she had received a total of 29 gm. of this antibiotic. On July 28, approximately 35 days after starting PAS therapy, her temperature rose to 100.2°. PAS was withheld the following day. Her temperature promptly returned to normal. On July 31, she was again given PAS and again responded with a rise in her temperature.

On August 8 and again on September 6 she gave similar responses to the ingestion, on each occasion, of 4 gm. of PAS.

CASE 5

G.H., 17 years of age, was admitted to hospital on May 31, 1951 with moderately-advanced pulmonary tuberculosis. His sputum contained tubercle bacilli. He was put on a bed-rest regimen, and on June 7, started on dihydrostreptomycin and PAS. Between June 7 and July 5 he received 29 gm. of dihydrostreptomycin, and consumed 276 gm. of PAS. In early July his temperature, which had been normal previously, began rising. PAS therapy was discontinued temporarily on July 5. His temperature continued to remain elevated, in fact, went to higher levels on two or three occasions, following the withdrawal of PAS, and then, after the lapse of approximately four days, returned to normal. Because there was, at the time, some uncertainty as to whether or not this patient's febrile response, as just described, was a result of ingestion of PAS, he was given PAS, in 4 gm. amounts, on three subsequent occasions, once on July 16, again on July 26, and again on September 9. On each of these occasions his temperature promptly rose to 103° or thereabouts and, in the course of a few hours, promptly returned to normal.

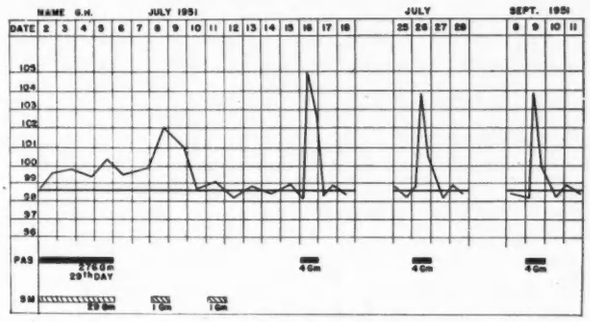

Fig. 3

CASE 6

J.O., a 58 year old clerk, who had far-advanced pulmonary tuberculosis, entered hospital on August 22, 1951. His chest roentgenograms, on admission, disclosed evidence of extensive bilateral disease with multiple cavities in the upper portion of the right lung. His sputum contained tubercle bacilli. Streptomycin, 1 gm. daily, and PAS, 12 gm. daily, were started on August 26. About 26 days after the institution of this form of therapy, his temperature suddenly rose to 102°. PAS therapy was discontinued on September 26, three days after the temperature had suddenly risen to 102°. He kindly agreed to take a test dose of PAS–2 gm.–a few days later. A few hours after taking this test dose, his temperature rose to slightly over 101°, and, he broke out in a maculo-papular rash. His temperature returned to normal and his rash gradually disappeared, in the following 24 to 48 hours.

COMMENT

The evidence presented herein seems clearly to indicate that one of the toxic effects of PAS therapy may be and frequently is a febrile response. It also discloses that on occasion this febrile response may be associated with the development of an erythematous skin reaction. Close examination of the records of the six patients whose findings have just been reported reveals the following: (1) that in this series of cases the febrile reaction due to PAS first appeared some time between the 13th and 37th day after its ingestion and (2) that administration of even small quantities of PAS to patients who had once responded to this medication with a febrile reaction regularly evoked a prompt rise in temperature, sometimes with skin manifestation and sometimes without such manifestations. These observations seem clearly to indicate that tissue sensitization plays an important part in febrile reaction due to PAS. Little is known regarding the factors involved in the development of tissue sensitization to PAS. It seems unwise in the light of the findings reported herein, and the foregoing observations, to attempt to give patients who have once experienced a febrile reaction due to PAS, additional quantities of this compound.

SUMMARY

1. Approximately 1% (6 of 590) patients with pulmonary tuberculosis who were treated with PAS during the years 1950 and 1951, up to September of the latter year, gave a febrile response to this form of medication.

2. The time interval between the start of PAS therapy in the six patients whose findings are described herein and the onset of their febrile reactions (due to PAS) varied between 13 and 37 days.

3. Administration of even small quantities of PAS to patients who had once given a febrile response to this form of medication regularly evoked a further febrile reaction.

I am indebted to Dr. Hugh E. Burke and Dr. F. Learn Phelps, Medical Directors of the Montreal and Laurentian Divisions respectively of The Royal Edward Laurentian Hospital for their encouragement and assistance.

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HÆMOGLOBIN, RED CELL COUNT, AND MEAN CORPUSCULAR HÆMOGLOBIN OF HEALTHY INFANTS

The authors studied 267 infants, 1 to 12 months of age by 517 estimations of hæmoglobin and RBC counts. The mean hæmoglobin level was 12.50 gm. per 100 ml. of blood at 1 month of age, and decreased rapidly to a minimum of 11.35 gm. at 2 months of age. By 5 months the hæmoglobin level was 12.45 gm. per 100 ml. of blood, this was followed by a decline and recovery by 12 months of age. In all age groups the hæmoglobin level of the boys was lower than that of the girls due, in all probability, to the more rapid growth of the boys. At one month of age the erythrocytes numbered 4,000,000 per c.mm. of blood, and decreased to 3,800,000 by 2 months of age, the counts returned to 4,000,000 by 12 months. In the one-month old infants the mean hæmoglobin content was 32.0 micromicrograms, this rapidly fell to 27.0 micromicrograms during the next few months and slowly decreased thereafter. This fall was more rapid in the boys than in the girls, and remained lower throughout the first year of life. This study revealed no evidence of seasonal variations in hæmoglobin levels.–Leichsenring, J. M. *et al.*: *Am. J. Dis. Child.*, 84: 27, 1952.

THE ASSOCIATION OF CHRONIC PULMONARY EMPHYSEMA WITH CHRONIC PEPTIC ULCERATION*

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IT WAS OUR CLINICAL IMPRESSION that chronic peptic ulcer was associated with chronic pulmonary emphysema more often than should be expected by chance alone. A search of the literature did not reveal any reference to this association.

In order to seek further evidence on this matter recourse was had to the post-mortem material at this hospital, and 700 consecutive autopsies were analyzed; all of these were male patients. The incidence of benign chronic peptic ulcer in this whole group was determined from the autopsy protocols, and then certain selected groups were further analyzed, as follows:

TABLE I.

Type of case	*No. of cases*	*No. with ulcer*	*% with ulcer*
All cases	700	45	6.4
Emphysema	64	12	19.0
Carcinoma prostate	36	2	5.5
Hypertensive disease	52	2	3.9
Bronchogenic carcinoma	42	7	17.0

1. Those patients who had been clinically diagnosed and treated as cases of chronic pulmonary emphysema, and in whom this diagnosis had been confirmed at autopsy.

2. Those cases that had carcinoma of the prostate at post-mortem.

3. Those cases who had died of hypertensive cardiovascular disease.

4. Those cases that had died of bronchogenic carcinoma.

It was hoped that these four groups might act as control groups, being approximately in similar age levels, and having comparatively chronic or subacute illnesses.

The results of the analysis are tabulated: (Table I).

The figures suggested that there might, indeed, be an increased incidence of peptic ulcer in patients dying of chronic pulmonary emphysema. The apparent increased incidence of peptic ulcer in the group with bronchogenic carcinoma is interesting. It would be of interest to compare groups of other types of chronic respiratory disease, but no other such groups of sufficient size were included in the post-mortem material.

It was also noted that in addition to chronic peptic ulceration, some cases had acute peptic ulceration so that multiple ulcers were not infrequent. It was of further interest to note that four of the twelve patients who had emphysema and peptic ulceration had severe upper gastrointestinal hæmorrhage which contributed to their death.

In order to seek further information, a series of clinical histories were drawn on patients who had been diagnosed and treated for chronic pulmonary emphysema but who were still alive: 72 such cases were found. In 14 of these cases a diagnosis of peptic ulcer had been made on the grounds indicated in Table II.

TABLE II.

Evidence	*No. of cases*
X-ray	9
Perforation	2
Hæmorrhage	1
Gastro-enterostomy	2
Total	14

In other cases dyspepsia had been noted in the functional inquiry, but further investigation had not been carried out except in two cases where barium x-ray studies had been done and were reported as negative.

Thus among the clinical material the incidence of peptic ulceration was 14 out of 72 cases, as a minimum figure, or 19%.

DISCUSSION

We felt that these figures vindicated our clinical impression that peptic ulceration is considerably more common in patients suffering from chronic emphysema than is generally recognized. There did not appear to be any relationship between the occurrence of the ulceration and the type of treatment used and, in almost all clinical cases, the pulmonary symptoms occurred long before dyspeptic symptoms appeared. Hæmorrhage seemed to be more common in those who had right heart failure.

The proof here is on statistical grounds, which is not always too satisfactory evidence. Taking the probable true incidence of chronic peptic ulceration in post-mortem material as 6.4% (the incidence in the whole 700 autopsies) the chances of finding 12 cases of peptic ulcer among the

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group of 64 patients with emphysema by pure chance works out to about 3 in 100. Although this is not the ratio that makes the statistician completely happy, it is a reasonably good chance that the observation is a true one. In order to have more certain evidence either for or against, it would require a larger group of cases than we have available.

The purpose of this communication is to suggest further observation by other interested individuals on this problem, and to suggest that possibly more attention should be paid to the dyspepsia and epigastric distress occurring in patients with emphysema. Several text-books mention, in passing, that epigastric distress or dyspepsia are symptoms that are associated with chronic pulmonary emphysema. These symptoms have been variously ascribed to "anoxia" or to "the result of an overworked diaphragm and abdominal muscles".

Because we cannot accept our hypothesis as proved, it seems rather idle to speculate on the mechanism of production of peptic ulceration in these patients.

SUMMARY

Clinical impression and analysis of post-mortem protocols and clinical histories of patients with chronic pulmonary emphysema suggest that chronic peptic ulceration occurs more often in this group of patients than would be expected by chance alone.

It is suggested that the dyspepsia and epigastric distress that are not infrequently associated with this chronic pulmonary disease may often be due to peptic ulceration.

AN ASSESSMENT OF THE VALUE OF A WELL WOMAN CLINIC*

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THE WELL WOMAN CLINIC of the Royal Victoria Hospital in Montreal was established in the spring of 1948 by the department of obstetrics and gynæcology. The object of this clinic was to offer to the asymptomatic well women of our community an opportunity to undergo a routine medical check up as was being done in a large number of similar institutions in the United States of America at that time.

From the time of its inception the policy of the clinic has remained the same, although it has undergone gradual evolution in the manner of execution of this policy. The main purpose has been to offer a low cost combination of examinations and laboratory tests directed at discovering serious asymptomatic diseases such as cancer and tuberculosis. The opening of the clinic and its purpose was announced in the medical and the lay press.

Only women who claimed to be free of complaints were admitted and only after naming a doctor to whom a report of their condition could be sent. Recently the clinic has begun to notify the doctor of the patient's appointment, and if he does not feel that the examination is indicated, the patient is not accepted.

On two occasions a group of two hundred consecutive patients were asked if they were in the habit of going to their physician for periodic check-ups. In each group 60% of these women were not in the habit of doing so.

At the onset the clinic was held one-half day per week, but the large demand for such examinations has resulted in a gradual increase in the number of patients, and at the present time approximately 300 patients are seen every month on the basis of five half days per week.

The patients are booked in two categories: (a) public patients who pay according to their means, from nothing to a maximum of three dollars, (b) semi-private patients who pay an all inclusive fee of fifteen dollars which barely covers the actual costs of the examination to the hospital as listed in Table I.

TABLE I.

Rental, laundry, power etc.	$2.25
Nursing services	.65
Full size chest plate	3.00
Cervical cytology test	1.50
Hæmatology	.50
Doctors, 3 for each patient	6.00
Secretarial help	1.00
Total	$14.90

The physical examination is performed on each semi-private patient by certified specialists in surgery, gynæcology and medicine. The public

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patients are examined by residents of the above departments. The examination is similar in both categories and comprises the items listed in Table II.

TABLE II.

1. History and functional inquiry.	
2. Complete physical examination.	
3. Urinalysis for albumen and sugar.	
4. Blood pressure.	5. Weight.
6. Hæmoglobin.	7. Sedimentation rate.
8. Chest x-ray.	9. Compact cells.
10. Blood Wassermann.	11. Cervical cytology.

After all the reports are received for a given patient, her record is reviewed by the director of the clinic who makes a summary of the case, which is mailed to the referring doctor and at the same time the patient is notified that this has been done. The patient does not receive a copy of the report. The clinic takes no further action in the case and does not routinely send follow up letters to ascertain the eventual outcome of detected abnormalities. This remains the responsibility of the referring doctor.

The period under study embraces approximately the first four years of the function of the clinic. In this period 4,486 women were examined of which 43% were public patients, the remainder being semi-private. The ages of these patients varied widely but it is interesting to note in Table III that the majority were between 31 and 50 years of age.

TABLE III.

Age groups	
Under 20	8
21 to 30	576
31 to 40	1,747
41 to 50	1,361
51 to 60	614
61 and over	180

Except in a few readily explained instances shown in Table IV the results in the two groups of women are roughly parallel and will be reported together.

TABLE IV.

Defect	*1,943 public*	*2,543 private*
Anæmia	106	24
Underweight	172	9
Overweight	16	234

Out of the total of 4,486 patients, 1,394 or 31% showed entirely negative findings. The remaining 3,092 women were discovered to have a total of 5,074 abnormalities. These involved every major system of the body, some were insignificant, some were serious. It is obvious that a detailed classification of these lesions is beyond the scope of this paper. For the purpose of evaluation of the clinic these abnormalities are divided into five groups depending on their significance to the patient in terms of a threat to her health or her life.

Group 1, total 1,422 cases. These are unimportant lesions which do not usually progress and do not constitute a hazard to the patient, *e.g.*, vaginitis, hypotension, skin lesions.

Group 2, total 2,329 cases. Lesions which occasionally develop to a point where they require treatment but which rarely threaten the patient's life, *e.g.*, hernias, cystoceles, varicose veins.

Group 3, total 638 cases. Chronic lesions which are on the whole refractory to treatment and may progress to cause death, *e.g.*, hypertension, rheumatic heart disease.

Group 4, total 674 cases. Lesions which, although asymptomatic have a potential for progressing and endangering life unless treatment is instituted early, e.g., anæmias, breast lumps, positive cytology.

Group 5, total 11 cases. Lesions which constitute a serious threat to the patient at the time of discovery, *e.g.*, tuberculosis, cancer.

It is at once evident that group 4 contains the lesions which are the most interesting from our viewpoint. The larger classification of this group are shown in Table V.

TABLE V.

LESIONS OF GROUP 4			
Large fibroids	74	Thyroid nodules	78
Glycosuria	20	Large adnexal masses	39
Anæmia—70%	130	Suspect chest x-ray	65
Breast lumps	78	Positive serology	16
G. I. Symptoms	55	Positive cytology	36
Rectal polyps	18	Miscellaneous	65

For the purpose of this report the usual clinic procedure was departed from to the extent that follow up letters were sent to the doctors of the patients belonging to some of the more interesting classes of group 4. These follow up letters included a reply form and a stamped self-addressed envelope. The results of the follow up are shown in Tables VI, VII, VIII, IX and X.

TABLE VI.

THYROID NODULES

78 letters sent: 42 replies.	
No specific information	15
Findings confirmed, nothing done	23
Findings confirmed, thyroidectomy	4
Results of thyroidectomy	
Calcification, no malignancy	1
Doubtful malignancy	1
Non toxic nodular goitre	1
Bilateral adenomata	1

TABLE VII.

DOMINANT BREAST LUMPS

78 letters sent: 37 replies	
No specific information	11
Findings confirmed, no biopsy	15
Findings not confirmed	2
Findings confirmed, biopsy done	9
Results of biopsies	
Fibro adenomas	6
Fibrocystic disease	3

TABLE VIII.

LARGE ADNEXAL MASSES

30 letters sent: 21 replies	
No specific information	2
Findings confirmed nothing done	13
Findings confirmed, operation	6
Operative findings	
Benign ovarian cysts	3
Uterine fibroids	3
Tuberculous salpingitis	1

TABLE IX.

ABDOMINAL MASSES

13 letters sent: 4 replies	
No specific information	2
Cases investigated	2
Results of investigation	
Diverticulosis of colon	1
Negative, probably loaded bowel	1

TABLE X.

POSITIVE CERVICAL CYTOLOGY

36 letters sent: 18 replies	
Repeat cytology negative	1
Biopsy: neg. for cancer	4
Biopsy: carcinoma *in situ*	2
Biopsy: squamous carcinoma	11

It will be noted that 50% of the follow-up letters were answered in a period of one month. Of the replies received 25% gave no specific follow-up information, the reason for the majority of these being that the patient failed to return to see her doctor. Thus, out of 244 cases under follow-up, we have specific information on a total of 92. Of these 53 are being kept under observation, the remainder, or 39 patients (17%) have had biopsies or operations. These biopsies have turned up 14 early malignancies. Admittedly the groups chosen for follow-up were the most likely to disclose malignancies. The total number of malignancies which would have been discovered on complete investigation and reporting of these groups remains an unknown quantity, but one which offers interesting speculation.

To recapitulate, we have found, as the result of the routine examination of 4,486 "well" women, the patients of group 5 which total 11 cases and in addition 13 cases as a result of follow-up in group 4, all of whom demonstrate serious disease as listed in Table XI. In addition a much larger number of less serious but still important findings (glycosuria, positive serology, etc., see Table V) were made which, if properly investigated and treated would be of definite benefit to the patient.

TABLE XI.

Active pulmonary tuberculosis	5
Mod. advanced pulmonary tbc.	2
Miliary tbc. or carcinomatosis of lung	1
Inflammatory mass or carcinoma lung	1
Probable lung cancer	1
Doubtful malignancy of thyroid	1
Carcinoma *in situ* of cervix	2
Early squamous carcinoma of cervix	11

It is interesting to note that a high proportion of the discoveries of actual serious disease in asymptomatic women were made by laboratory procedures alone or by biopsies indicated by these tests. In fact, the chest plate and the cervical cytology test are responsible for the detection of all but one of the cases listed in Table XI.

Another interesting feature is the relatively small percentage of patients who apparently end up with what appears to be adequate investigation of the reported findings.

It is also apparent that such a clinic as this has caught the fancy of the public and these women create a high demand for this form of preventive medicine. It is equally apparent that the profession at large views such clinics with mixed emotions based on a variety of reasons.

The mass use of routine chest x-rays is now well established and is regarded by the profession as ethical and desirable.

It is evident from our study that a reliably performed cervical cytology test on a group of women such as we have seen, will discover as

much serious asymptomatic disease as the routine chest x-ray.

It may be that the answer in the future will lie in the restriction of the activities of a Well Woman Clinic to the laboratory procedures including the chest x-ray and the cervical cytology test. These could be carried out very economically by technicians and a few medical consultants. In addition there should be consideration of a comprehensive diagnostic clinic capable of pursuing the investigation of a patient to a satisfactory conclusion. The first would probably satisfy the lay desire for a routine check-up and at the same time constitute very valuable screening. The second would be available, on a strict referral basis, to help carry out the more difficult diagnostic procedures desired by the profession in an integrated economical fashion.

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ADENOLYMPHOMA*

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MANY NAMES have been given to this unusual tumour of the neck described morphologically by Warthin[16] as a papillary cystadenoma lymphomatosum and sometimes bearing his name, although adenolymphoma is that in most common usage. Others are branchiogenic adenoma, branchioma, onkocytoma, orbital inclusion adenoma, and epithelio-lymphoid cyst. The tumour was probably first described by Hildebrandt[5] in 1898 but the description of two cases by Albrecht and Artz[1] in 1910 is usually considered as being original. Since that time some 159 cases of this tumour have been reported.[17] Adenolymphomas, while probably not as uncommon as the few reported cases would indicate represent approximately 2 or 3% of all salivary gland tumours.[4, 10, 16] It has been reported to comprise 6 to 10% of all tumours of the parotid gland.[11, 9]

The first instance of bilateral tumour involvement was described by F. L. Nino[11] in 1941 and five additional cases have since been reported.[13, 9, 12]

It is the purpose of this paper to report one further bilateral tumour and one probable bilateral lesion, as well as five additional cases of adenolymphoma encountered on the surgical services of the Montreal General and Queen Mary Veterans' Hospitals during the past ten years.

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INCIDENCE

As noted adenolymphomas comprise 2 or 3% of salivary gland tumours and 6 to 10% of all parotid neoplasms. The tumour has been reported at 2½ years[15] as well as at 92 years[2] of age, but is most common in the 6th decade.[9, 12] For as yet unexplained reasons there is a marked preponderance in males, the incidence varying from 5:1 to 10:1 in various series.

CLINICAL FEATURES

In reviewing reported cases in 1942 Plaut[12] found a duration of symptoms varying from a few months to 30 years, although 80% of patients complained of the presence of a mass for several months to 4 years. Our cases were of somewhat shorter duration, the longest being 3 years. The tumour usually presents as a small asymptomatic subcutaneous mass occurring most commonly in the parotid gland or immediately anterior to the sterno-mastoid muscle, postero-inferior to the angle of the mandible. It may however lie over the angle of the mandible, over the ramus of the mandible, in the region of the submaxillary gland or even in a retro-auricular position. There appears to be no particular predilection to involvement of one side. The parotid origin of these tumours remains disputed, although Martin and Ehrlich[9] considered all of their cases to be in the parotid area including 2 cases in which the growths were situated in the upper neck in close relation to the superior pole of the thyroid and in association with the tail of the parotid. Hevenor and Clark[4] were, however, unable to prove the presence of the tumour in salivary gland tissue in 9 of their 20 cases.

The tumour varies from 1 to 5 cm. in diameter, there being no direct correlation between duration of symptoms and size. It is usually soft to firm in consistency though rarely hard. It may or may not be fluctuant depending on the histological structure or on the concentration of papilliferous elements encroaching on the lumen. It is not uncommonly fixed to deeper structures, but the skin is usually freely movable over the mass. Except when secondarily infected tenderness to palpation is absent, although rapid growth of the tumour is frequently associated with local discomfort due to increased tension in the enclosed cystic space. Confusion may arise clinically between a mixed tumour, when the lesion is in the parotid area, or a branchial cyst, when in the lateral neck. A solitary lymphoma has also been suggested in differential diagnosis. The tumour is rarely diagnosed preoperatively.

PATHOLOGY

The tumour usually presents a finely lobulated appearance under a thin capsule of collagenous connective tissue, although occasional absence of a complete capsule would make invasion of surrounding tissue feasible. When the tumour is opened it is seen to contain a mucinous homogeneous material, greyish to reddish brown in colour. The wall is opaque, the cut surface being shaggy and coarsely pseudolobulated. The extent of the papillary nature of the lesion is variable and it may show a multiloculated appearance.

Histologically it is characterized by papillary epithelial structures embedded in a lymphoid stroma. There may or may not be germinal centres depending on the concentration of lymphoid tissue. The intracystic papillary projections vary from simple stalks to complex branchings. The spaces are lined by characteristic pseudo-stratified columnar epithelium, the outer layer comprising tall columnar cells with deeply staining nuclei at their periphery, and beneath these two to three layers of cuboidal cells. The cytoplasm of these cells is finely granular staining a light pink with hæmotoxylin and eosin. The nuclei of the columnar cells are regularly placed in an apical position. Warthin described the epithelium as being ciliated, but this has not been corroborated by subsequent authors.[9]

There are a great many histological variations in these tumours ranging from a truly papilliferous structure with numerous branchings to include the whole lumen of the cyst to the so-called "solid" type of adenolymphoma[8, 12] comprising small gland-like cysts lined by low cylindrical epithelium embedded in a dense lymphoid stroma. These variations are entirely dependent on the arrangements of epithelial and lymphoid tissues in the growth. The typical pseudo-stratified epithelium seems the most diagnostic histological feature. Five cases of malignant changes in adenolymphoma have been reported of which two are questionable malignancy,[14, 15] two[3, 6] are of questionable etiology and one,[8] a reticulosarcoma, may have arisen in a lymphoepithelioma as described by Fein.

HISTOGENESIS

The histogenesis is of particular interest since there is no generally accepted theory as to the origin of these tumours. The five main views listed are those most often entertained:

1. Heterotropic pharyngeal entoderm or salivary tissue in lymph nodes (Albrecht and Artz–1910).
2. Branchiogenic remnants (Hildebrandt 1898 and Ssobolew 1912).
3. Heterotropic rests of entoderm of the Eustachian tube or pharynx with accompanying lymphoid tissue (Warthin 1929).
4. From onkocytes (Hamperl 1931 and Jaffe 1932).
5. From orbital inclusions (Kraisse and Stout 1933).

It seems most generally accepted[9, 12] that the tumour arises from heterotropic salivary gland tissue in lymph nodes in and around the parotid gland, although the persistent absence of lymph sinuses is against this. Hevenor and Clark[4] favour Warthin's original hypothesis regarding rests of Eustachian tube and pharyngeal entoderm but the presence of ciliated epithelium noted in his two cases has not been substantiated by others. Gaston and Tedeschi[3] point out the occasional absence of ciliated epithelium in the pharyngeal mucosa itself, and their comparison of the mucosa of the embryological respiratory tract with the lining of the adenolymphoma is very suggestive. Others favour an origin in interlobular ducts of the parotid.[2, 10] An onkocytic origin seems criticized largely on the basis of the absence of dedifferentiation of these characteristic cells under 20 years, although the adenolymphoma is found before this age. A branchiogenic etiology is attractive from the standpoint of histological similarity, but adenolymphoma are characterized by their typical pseudo-stratified epithelium and absence of sebaceous glands and hair follicles. Indeed, the origin of

branchial cysts of the neck is itself very much disputed.

A favouring of one or the other of these theories would not seem possible without more extensive experience and intensive study. However, that originally suggested by Warthin appears most acceptable.

TREATMENT

There is general agreement as to the treatment of adenolymphomas, namely surgical removal. Removal is usually without difficulty as even those tumours arising in the parotid eventually come to lie on the surface of the gland during growth. Recurrences following removal have been reported, but may well be ascribed to the presence of a smaller tumour at the time of removal of the original one as suggested by Lloyd who demonstrated two adenolymphomas on one side in a patient showing bilateral tumours. Those reported as having recurred were removed with equal facility at the time of reoperation. Since the tumour gives no troublesome symptoms and need only be removed for cosmetic reasons, a precise diagnosis is desirable to exclude the possibility of some other possibly malignant lesion. Needle biopsies have been used successfully in establishing the diagnosis preoperatively. Radiation is probably unnecessary.

CASE 1.

M., 71 years, admitted first to Queen Mary Veterans' Hospital in June 1948 with complaints of a lump in the left neck which he had noticed for 3 to 4 months. The lump had first become apparent when shaving and was noted to enlarge slowly to the size of "half an egg" with some subsequent regression. No other symptomatology had been experienced. Physical examination revealed a firm regular nodule, 2 to 3 cm. in diameter, immediately posterior and inferior to the angle of the left mandible. A smaller palpable "lymph node" was described at the angle of the right mandible. The remainder of the physical examination was unrelated. Clinical diagnosis—lymphadenopathy, etiology undetermined.

Excision of lesion carried out on June 15, 1948, the mass being well encapsulated and removal easy.

Pathological examination revealed the tumour to be grossly oval in shape with a glistening capsule. The cut surface was shaggy and greyish white in colour, a mucoid, greyish brown material was present in the cystic interior.

Microscopical examination (Fig. 1) revealed a well encapsulated cystic structure showing papilliferous projections extending from a lymphoid stroma into the lumen. The cavity was lined by pseudo-stratified columnar epithelium. The core of the papilliferous projections comprised thin collagenous tissue heavily infiltrated with lymphocytes, the picture was that of a cystic adenoma of branchial origin and a pathological diagnosis of branchial cyst was made.

The patient remained asymptomatic until October 1951 when a similar mass presented itself in an identical manner on the right side. He was admitted to hospital in February 1952 for removal. Examination revealed a firm oval swelling immediately anterior to the sternomastoid at the level of the hyoid bone in the right neck. The mass moved freely in a lateral direction, but movement was impossible vertically. The skin was not fixed. A clinical diagnosis of branchial cleft cyst was made.

Excision was again carried out without difficulty, the tumour being well encapsulated, lying immediately anterior to the sternomastoid and deep to the cervical fascia. A biopsy of the deepest portion of surrounding tissue was taken to exclude a possible pharyngeal communication.

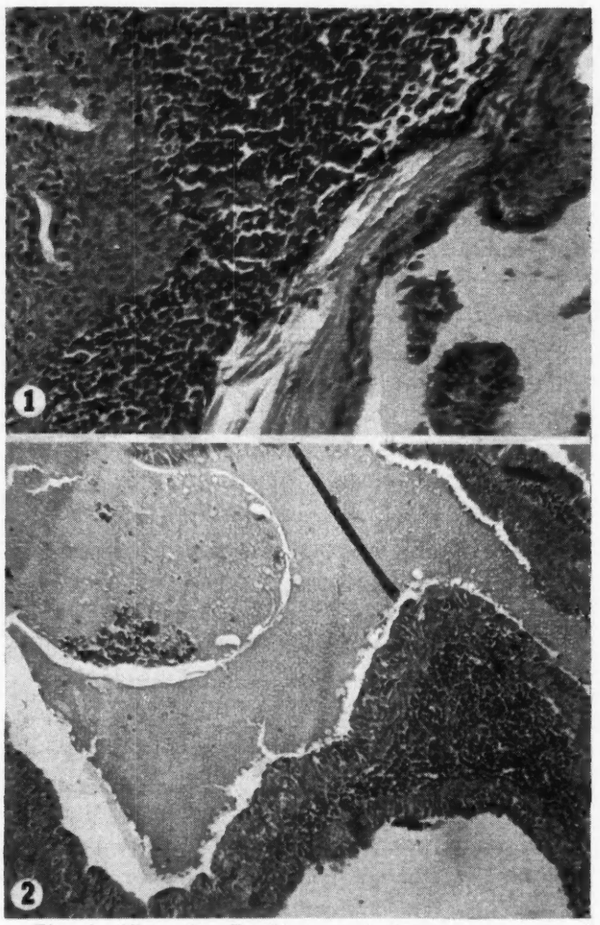

Fig. 1. (Case 1).—Papillary projections on a base of lymphoid tissue showing typical pseudo-stratified columnar epithelium. X43. Fig. 2. (Case 2).—Similar pathological picture again noted. The large cystic spaces are well shown. X10.

Pathologically the tumour was identical with that removed four years previously (Fig. 2), the pathological diagnosis being adenolymphoma. The biopsy taken at operation showed normal salivary gland tissue, although the lesion seemed well separated from both the parotid and submaxillary glands.

The error in pathological diagnosis in the first instance, despite an accurate description of the tissue in this case, is of interest. Unfamiliarity with the tumour was undoubtedly the reason. Similar misdiagnoses may be responsible for the comparative rarity of the lesion. It might be

speculated that the "lymph node" at the angle of the right jaw noted in 1948 was indeed the lesion in question, the comparatively rapid increase in size 3½ years later prompting his return to the surgical clinic.

CASE 2.

Male, 69 years, admitted to the Medical Service, Queen Mary Veterans' Hospital in September, 1946 for investigation of arteriosclerotic heart disease in association with cirrhosis of the liver. Routine examination revealed bilateral firm slightly irregular swellings immediately anterior to the angles of the mandibles in the parotid areas. The swellings were fixed to the underlying tissue, the skin being freely movable over them. No estimation as to the duration of these tumours could be obtained from the patient. On September 17, 1946 removal of the mass on the right was carried out without difficulty under local anæsthesia.

Pathological examination showed an oval encapsulated structure 2.5 x 1.5 cm. which was obviously cystic on cut section, being greyish brown in colour. Microscopically it showed numerous cystic spaces lined by pseudo-stratified columnar epithelium on a stroma of lymphoid tissue. The cyst walls showed numerous papillary projections into the lumen. Germinal centres were identified. The pathological diagnosis was adenolymphoma of the parotid gland.

Removal of the tumour on the left was unfortunately not carried out although it appeared identical clinically. The patient has since died as a result of liver failure so that pathological confirmation as to the nature of the lesion cannot be obtained.

Five additional cases are included in Table I, the pathological picture in each case being typical of the tumour as described.

TABLE I.

	Year	*Age*	*Sex*	*Size*	*Duration*	*Location*	*Treatment*
1.	1943	76	M	6–8 cm.	5 mos.	2–3 cm. below and anterior to right external auditory canal	(1) Irradiation (2) Excision
2.	1948	53	M	5 cm.	2 yrs.	At angle of jaw posterior to ramus of mandible	Excision
3.	1950	60	F	5–6 cm.	6 mos.	Between angle of jaw and lobe of ear	Excision
4.	1951	72	F	2–3 cm.	1 year	At angle of jaw	Excision
5.	1951	59	M	3 cm.	3 years	Behind angle of jaw and anterior to sterno-mastoid	Excision

Fig. 3. (Case 1).—Typical pseudo-stratified epithelium under higher power. X240.

COMMENT

In none of our cases was the diagnosis entertained clinically prior to operation. A presumptive diagnosis of malignancy in one case prompted radiation therapy with subsequent difficulty in removal as a result of surrounding scar. Surgical removal in all cases with this exception was remarkably easy. The most common location in these cases was immediately posterior to the angle of the jaw suggesting an association with the parotid gland. It is recommended, however, that adenolymphomas be included in the differential diagnosis of all tumours of the superior lateral neck. Such a location is not uncommon, although association with the parotid gland might not be considered at the time of examination.

SUMMARY

The adenolymphoma is a not too uncommon tumour of the parotid gland area. A brief review of the clinical and pathological features of this tumour is presented with an accepted suggestion as to possible etiology.

Seven cases are added to the 159 reported in the literature, including one bilateral and one probably bilateral tumour.

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SANATORIUM TREATMENT OF TUBERCULOUS PATIENTS IN ONTARIO

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THE TREATMENT of tuberculous patients in sanatoria has undergone marked changes within the past 20 years and quite significant changes within even recent years. There has been an increase in the use of surgical procedures to immobilize or remove tuberculous disease. The wise use of antibiotics has turned the tide for a considerable number of patients admitted with progressing tuberculosis. The majority of such patients are now kept alive to attain eventual arrest of their disease through bed rest, antibiotics, time, supportive measures, and frequently some type of surgical procedure to remove or immobilize the affected areas to consolidate and help to perpetuate the gains made.

The use of antibiotics and chemotherapeutic agents in the sanatorium treatment of tuberculous patients within recent years has undoubtedly halted the pregression of disease commonly seen in previous years and has resulted in a greater number of patients attaining the stage where surgical measures were applicable and required to facilitate their discharge from sanatorium. The percentage of patients discharged from sanatoria by death has decreased significantly during recent years. Greater attention is being given to the rehabilitation of the patient, making better use of his or her time while in sanatorium to prepare for any necessary changes in occupation or mode of life when eventually declared fit to return to work. Medical records and other aspects of good medical care as well as cost-accounting procedures are now commonly found to be of a high standard. The term "sanatorium" with the usual interpretation of some 20 years ago could now well be replaced by the term "hospital for tuberculosis".

This paper will briefly describe certain trends in the sanatorium treatment of tuberculous patients in Ontario as disclosed mainly by a review of the medical statistical reports published annually by the Ontario Division of Tuberculosis Prevention for the five calendar years 1946 to 1950, inclusive.

AGE, SEX, AND DIAGNOSIS ON ADMISSION

There has been no striking change in the extent of tuberculous disease on admission among male or female patients throughout the 5 year period. This lack of any significant increase in the percentage of patients admitted with minimal tuberculous disease is perhaps contrary to expectation in view of the preponderance of minimal pulmonary tuberculosis among those persons reported as found to have active tuberculous disease in routine chest x-ray surveys conducted during the period under study. The explanation could be that some of such persons were either not recommended for treatment in sanatorium, or at least were not reaching sanatoria; but it is more likely that more searching methods of examination available and utilized in sanatoria (including planography) disclosed evidence (such as cavities) on admission warranting the diagnosis of tuberculosis of greater extent than minimal. Extension of disease from time of diagnosis to time of admission would play a small rôle in this explanation. Furthermore, other methods than routine chest x-rays of apparently healthy individuals to detect persons with active pulmonary tuberculosis continue to be used. It is found upon analyzing these methods that the examination of those persons reporting with symptoms of chest disease to family physician, consultant or chest clinic usually reveals more advanced tuberculosis than minimal if the cause of the symptom(s) is found to be due to that disease.

There may be a significant but slight increase in the percentage of patients with extrapulmonar tuberculosis only, who were admitted to sanatoria during this period. If this is actually a true increase, it could merely be due to greater use of sanatoria as a location for the treatment of such patients.

It is worthy of note and attention that approximately 30% of the patients admitted to sanatoria in Ontario during the period 1946 to 1950 had far advanced pulmonary tuberculosis on admission.

There is some indication that a greater percentage of male than female patients are admitted with far advanced pulmonary tuberculosis but this difference has not increased or decreased materially during the period of study.

There is evidence that up to age 30 years, the percentage of female admission exceeds that for males, whereas from 35 years and over, male admissions out-number female admissions. This ex-

*From the Toronto Hospital for Tuberculosis, Weston, Ont.

cess of male admissions over female admissions over 35 years of age appears to become greater as the age increases. It is noted that in 1950, 21.8% of all those admitted to sanatoria were 50 years of age or over, comprising males 17.0% and females 4.8% of all admissions.

As there was a relatively constant situation as to extent of tuberculous disease on admission to sanatoria during the 5 year period under consideration, any variation in duration of stay, treatments applied and results of treatment could therefore not be ascribed to any significant changes in the extent of disease among those admitted during this period.

TABLE I.

TREATMENTS APPLIED TO PATIENTS DISCHARGED FROM OR DIED IN SANATORIA

(Treatments are those applied during the last period of sanatorium stay. Percentage of those discharged or died in the years shown who received the treatments stated. Some patients had received more than one type of treatment).

Excluding transfers to other sanatoria

	% from all sanatoria in Ontario					*% from Weston*
	1946	*1947*	*1948*	*1949*	*1950*	*1950*
Pneumothorax attempted unsuccessfully	9.2	5.6	6.9	5.3	4.2	1.2
Pneumothorax established—unilateral	27.0	25.6	23.8	22.7	14.8	3.1
Pneumothorax established—bilateral	6.0	4.6	4.0	3.4	1.8	0.2
Intrapleural pneumonolysis	15.4	12.2	12.2	10.4	9.0	1.7
Phrenic nerve operations	10.9	9.3	8.5	8.5	7.5	1.5
Pneumoperitoneum	1.7	2.3	2.6	4.1	7.8	12.3
Extrapleural pneumonolysis	0.3	0.6	—	—	—	—
Thoracoplasty	7.0	9.5	11.8	13.4	14.7	18.3
Streptomycin—(since 1949, with para-aminosalicylic acid)	—	?	12.6	42.4	53.1	49.3
Lobectomy	0.3	0.3	0.8	1.3	1.2	2.3
Pneumonectomy	0.1	0.1	0.2	0.8	0.9	2.3
Nephrectomy	0.8	0.5	0.4	0.4	0.4	0.8
Others—(miscellaneous, including aspirations, plaster casts, orthopædic operations, etc.)	16.3	15.8	11.2	13.3	16.0	27.1

TREATMENTS APPLIED TO PATIENTS DISCHARGED OR DIED (during last period of sanatorium treatment)

For those patients discharged or died during the period 1946 to 1950, while artificial pneumothorax, intrapleural pneumonolysis,and phrenic nerve operations were used with decreasing frequency, streptomycin (later accompanied by para-aminosalicylic acid), pneumoperitoneum, thoracoplasty and lung resection were used with increasing frequency (see Table I).

As a matter of interest, the treatments applied to patients discharged from the Toronto Hospital for Tuberculosis, Weston in the year 1950 are also shown. It should be noted that the figures given in Table I do **not** apply to patients transferred to other sanatoria and so eliminate duplications of reporting. The figures for Weston therefore would not be affected by the increased surgical procedures done for patients who were transferred in and out of that sanatorium expressly for such surgical procedures. Furthermore, the extent of tuberculous disease among patients admitted directly to the Toronto Hospital for Tuberculosis, Weston, is now essentially the same as the average admissions for all sanatoria in Ontario.

Artificial pneumothorax continues to be a major therapeutic device at those sanatoria where there are no surgical facilities, although its limitations are known and patients are more carefully selected for this type of treatment. (Transfer to surgical centres for major surgical procedures can be arranged and is done when indicated). At the larger sanatoria having surgical facilities, artificial pneumothorax is ever more frequently giving way to antibiotics, pneumoperitoneum ,and then thoracoplasty or pulmonary resection. Bed rest in a recumbent position continues of course to be an important and necessary basic treatment.

AVERAGE DURATION OF SANATORIUM TREATMENT (during last period of sanatorium treatment)

There is possibly a significant although not spectacular increase in the duration of sanatorium stay throughout the period under study. Contributing to an increase in the duration of sanatorium stay might be the effect of antibiotics in preventing or delaying deaths. This explanation may be reasonable in that the increase in duration of sanatorium stay occurred mainly

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among those patients with moderately and far advanced pulmonary tuberculosis (particularly those with associated or complicating extrapulmonary tuberculous lesions). Counteracting the trend to longer duration of stay would be the increased use of surgical collapse or resection procedures, thus providing immobilization and protection to the diseased area, or actual removal of gross disease, allowing earlier ambulation and discharge from sanatorium than when modified bed rest alone was relied upon.

We should note that the average duration of sanatorium stay from the last admission to discharge or death in 1950 was 431 days or approximately 14½ months. This figure includes those admitted who were found not to require treatment for tuberculosis. The corrected average duration of sanatorium stay for those requiring treatment for tuberculosis and discharged or died in 1950 is 461 days or approximately 15½ months. Even for those patients with uncomplicated minimal pulmonary tuberculosis requiring treatment, the average duration of sanatorium stay in 1950 was 11 months. Patients with active tuberculosis entering sanatorium should not be led to believe that sanatorium treatment of only a "few months" will be sufficient. It is also worthy of note that the average duration of sanatorium stay increases according to the extent of the tuberculosis on admission, and is longest for those found to have extrapulmonary tuberculous lesions associated with or complicating the pulmonary tuberculosis.

RESULTS OF SANATORIUM TREATMENT

It is difficult if not impossible to select any one yardstick upon which to base any reliable judgement as to the overall results of sanatorium treatment among large groups of patients on discharge. The classification of patients in regard to "condition on discharge" is inadequate for this purpose, as the borderlines between the various classifications are too flexible to accept detailed analysis of these classifications as a method of assessing results. The number of readmissions to sanatorium (for the past 5 years without much change at approximately 25% of all persons entering sanatoria in Ontario) is not a reliable guide, for the reason that total readmissions each year are drawing from an increasing accumulation of ex-sanatorium patients in the general population. The "rate of relapse" according to interval after discharge and according to method of discharge from sanatorium would be a more reliable guide, but such figures are not presently readily available.

If we consider broad classification on discharge, however, we may obtain some conception of the results of sanatorium treatment. If we group "arrested, apparently arrested and quiescent" in comparison with a grouping of "active, unstable or died" we see that during the 5 year period under study, the percentage discharged in the former group has increased at the expense of the latter group. For example, in 1946, 39.5% of those leaving sanatoria were discharged by death or with active or unstable tuberculosis. In 1950, only 26.5% of those leaving sanatoria were discharged by death or with active or unstable tuberculosis. In 1946 those discharged by death were 20.4% of all sanatoria discharges whereas in 1950 this figure had steadily decreased to 12.2%. This rather marked decrease in the percentage of patients discharged by death is evident for almost all categories of extent of disease on admission, but the decrease is most marked among those admitted with far advanced pulmonary tuberculosis and those admitted with extrapulmonary tuberculous lesions alone or complicating their pulmonary tuberculosis.

IRREGULAR DISCHARGES FROM SANATORIA

It is perhaps of some interest and of some importance to record the percentage of patients discharged alive who left sanatorium before they had received maximum benefit from sanatorium care in the opinion of the medical staff. That so many patients leave in this manner is cause for concern and it is in the interest of the public health that all measures consistent with fairness and democratic principles be utilized to reduce the number to a minimum. Adequate and frank instruction and "briefing" of the patient by family physician, medical officer of health and public health nurse prior to admission to sanatorium; a well developed in-sanatorium rehabilitation and social service program as well as wise use by Public Health Departments of the legal devices under the Sanatoria for Consumptives Act to effect the return of those who leave in an infective condition, are necessary to control and improve this situation.

The following figures represent those leaving sanatoria without medical consent.

ANCILLARY SERVICES IN SANATORIUM

Important as are medical, surgical, laboratory, x-ray, and nursing services in the sanatorium treatment and investigation of patients with tuberculosis, physicians would be short-sighted if they failed to appreciate and utilize the value and necessity of other services in the treatment of the total individual. Well balanced meals attractively served, good housekeeping and cleanliness, efficient mail delivery, regular movies with concerts periodically arranged, provision of canteen services, etc., assist in maintaining a high level of morale among patients and thus help to prevent irregular discharges. Contributing also to this effect are the provision of an earphone system to all bedsides for local and radio broadcasts, a patients' council as well as a sanatorium journal published regularly, a well stocked and efficiently operated patients' library, provision for dental care and optimetric services. Even the beautification and lanscaping of sanatorium grounds by a competent general maintenance staff have their beneficial effects upon those who must be confined to a sanatorium.

The employment of a trained social worker to assist patients with social and economic problems is a recognized and essential adjunct to sanatorium treatment. A well qualified staff of occupational therapists, conscious of the limitations in activity imposed upon patients by the exercise categories prescribed by the attending physicians, as well as an occupational therapy department stocked with supplies for a wide variety of craft work is imperative. A sanatorium school with a principal and a staff of qualified teachers is essential (certainly in the large sanatoria) for the teaching of academic subjects at all levels up to and including Grade 13 as well as commercial subjects and to some extent certain selected vocations such as radio mechanics, watch-repairing, etc. This staff of teachers can also obtain various correspondence courses for certain patients and can guide them in their work in these courses. A program of in-sanatorium rehabilitation can be developed around these school facilities.

Conferences should be held regularly with the chief physician, the sanatorium school staff, the social service worker, the chief occupational therapist and the patient librarian in attendance to discuss and plan for an in-sanatorium program designed for each newly admitted patient to utilize his or her time in sanatorium subject to medical supervision and advice, so that the patient is better prepared to proceed with post-sanatorium training or to re-enter a suitable occupation after discharge and when declared fit to return to work.

SUMMARY

1. In this review, an attempt has been made to present certain facts and figures regarding the sanatorium treatment of tuberculous patients which might not be evident to those unfamiliar with the changes which have occurred in such care within recent years.

2. During the years 1946 to 1950 inclusive, there has been no striking change in the extent of tuberculous disease among those patients admitted to sanatoria.

3. Among admissions to sanatoria, females exceed males in the younger age groups whereas males exceed females in the older age groups.

4. Pulmonary resection, thoracoplasty, artificial pneumoperitoneum, and antibiotics are being applied to an increasing degree in the treatment of tuberculous patients in sanatoria. Artificial pneumothorax, intrapleural pneumonolysis and phrenic nerve operations are being used less extensively. Bed rest in a recumbent position with graded exercise categories ordered by the attending physicians continues to serve as a basic method of treatment.

5. The average duration of sanatorium stay for tuberculous patients requiring treatment is approximately 15½ months. The duration of sanatorium stay increases in proportion to the extent of tuberculosis on admission.

6. The percentage of patients discharged by

Year	*No. of patients bacillary on leaving*	*No. of patients non-bacillary on leaving*	*Total*	*% of total discharges excluding deaths and transfers to other sanatoria as well as newborns discharged*
1946	119	146	265	11.0%
1947	67	127	194	9.0%
1948	70	209	279	12.0%
1949	116	276	392	13.2%
1950	118	285	403	15.5%

death during the 5 year period under study has decreased from 20.4% to 12.2% of the total discharged.

7. The relatively small but important percentage (15%) of patients discharged alive who leave sanatorium without medical consent constitutes a public health problem and probably accounts in some measure at least, for the percentage (25%) of re-admissions among those entering sanatoria.

8. Ancillary services for the comfort, social care and rehabilitation of patients are accepted and utilized in the modern hospital for tuberculosis.

9. As further procedures are developed and are available for the treatment of tuberculous patients, even greater importance and impetus is given to the detection of persons with active tuberculosis preferably in the early asymptomatic stage and before gross destruction of tissue has occurred.

NOTE.—For the sake of brevity, a number of statistical tables upon which the text was based have been omitted. Those interested may obtain those tables upon request to the author.

I wish to express my thanks to Dr. G. C. Brink, Director, Division of Tuberculosis Prevention, Ontario Department of Health, for permission to use the Medical Statistical Reports published by his Division in developing some of the facts presented in this paper.

PANCREATIC HETEROTOPIA

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THE ABOVE TITLE was suggested by Barbosa *et al.* in their splendid publication of 1946[1] in which they made a comprehensive study of aberrant pancreatic tissue. That this condition is important to those engaged in gastro-intestinal surgery is indicated by the work of Bousard and Walters[2] who, in 1950, brought the list of published cases up to a total of 543. The following case reveals many of the features frequently associated with this abnormality.

CASE HISTORY

A 25 year old steelworker was admitted to hospital on April 25, 1950 with a history of epigastric pain present since 1947. Both major and minor periodicity were present, pain occurring about one hour after meals, relieved by food and alkalis. In the latter part of this period the pain became more severe in character. He was first admitted to hospital in July 1949 for several weeks' treatment on a strict ulcer regimen, with the result that symptoms were relieved for about two months. He was again admitted in September, 1949 and was given conservative treatment for a period of 6 weeks and was discharged with some relief of symptoms, but from then until the time of his last admission his pain had become more severe and he developed anorexia and loss of weight.

There was no family history of gastro-intestinal disease. He was a well developed and fairly well nourished individual; the contour of the abdomen was normal and no masses were palpable. There was slight tenderness in the epigastrium to the right of the midline. Rectal examination revealed no abnormality. Routine examination of other systems showed nothing of note.

A fractional test meal performed on April 10, 1950 showed the following results:

Kind	*Amount*	*Reaction*	*Free HCl*	*Total Acidity*
Fast	35 c.c.	acid	51	106
1st	15 c.c.	acid	34	54
2nd	25 c.c.	acid	48	sl. free HCl
3rd	30 c.c.	acid	50	HCl
4th	25 c.c.	acid	70	HCl

Gastrointestinal studies showed a slight narrowing of the prepyloric antrum, rather inconstant and attributed to spasm. The first portion of the duodenum presented constant bulbar deformity; no ulcer niche was demonstrated; however, a moderate degree of duodenal irritability was found. A partial gastrectomy was performed; recovery was uneventful and to this date patient has remained free from symptoms.

Pathological report. — Gross examination showed the distal portion of a stomach 9 by 6 cm. which included the pyloric antrum and lower end of fundus. At the distal end, on the posterior wall, near the greater curvature, was a small polypoid structure ¾ cm. in diameter and projecting ¾ cm. into the lumen, the neck being slightly narrower than the convexity. The adjacent mucosa was quite normal. On section there was revealed an ovoid nodule, 3 mm. diameter at the centre of the polyp, and a tiny yellowish nodule, 1 mm. diameter at its base. The wall of the stomach at this point was thickened and rather indurated.

Microscopic examination.—The mucosa covering the polyp was identical with the surrounding

gastric mucosa. The larger nodule referred to above consisted of two tube-like invaginations of gastric mucosa cut in cross section. The small nodule lying in the base of the polyp was composed of groups of pancreatic acinous glands lying in the submucosa. Nearer to the serosal surface were several groups of dilated ducts. These were buried in the muscularis externa and lay for the most part between the circular and longitudinal layers. Each group of ducts was surrounded by a narrow band of plain muscle. No islets of Langerhans were found. Secretory activity of the acinous glands was indicated by the presence of zymogen granules, demonstrated by staining with phosphotungstic acid hæmatoxylin.

DISCUSSION

It is interesting to consider the embryological factors that may be concerned in this abnormal distribution of tissues. It has been stated[3] that in the embryo, the total pancreas is complete at the 27 mm. stage, and that the dorsal pancreas forms the head, the body, the tail, whilst the ventral pancreas forms the preduodenal fossæ, the pancreas minor of Winslow, and also reinforces the dorsal part of the head of the organ.

Horgan[4] believes that before the coalescence of these two embryological precursors, the body of the organ migrates upwards and its ducts come in contact with the stomach, intestines or mesentery; on these, the ducts may become engrafted by non-inflammatory adhesions. Later, during the growth and movement of the gland, these attached portions may be torn off, and remain to be incorporated in the wall of the stomach or intestine. These "rests" include germinative cells from which cell units of the pancreas may develop. Lordy[5] holds the view that these abnormalities are caused by a persistence of the left ventral anlage, which normally atrophies. A further hypothesis is that of Warthin[6] who suggests that these heterotopies are produced by a lateral budding of the rudimentary pancreatic ducts as they penetrate the intestinal wall, these last being separated from their parent tissues by the longitudinal growth of the intestine.

This anomaly has been noted most frequently in the fourth and sixth decades of life, but it has been discovered in patients in all ages.

The organs most commonly involved are the duodenum, the stomach, and the jejunum, these sites accounting for almost 70% of recorded cases.

Pathological changes may occur in the ectopic tissues, and these are such as may affect the pancreas itself, namely, pancreatitis, neoplasia and cyst formation. It has been suggested[1] that malignant change is more likely to occur in heterotopic tissue than in normal pancreas. In addition, pathological changes, such as fat necrosis, ulceration, and diverticulum formation are sometimes found in the tissues adjacent to the heterotopic pancreas.

The symptomatology is varied and depends to some extent on the location. Usually the symptoms suggest some gastro-duodenal lesion such as peptic ulcer, or they may implicate cholecystitis or biliary obstruction: chronic or acute appendicitis may be simulated. There may be, rarely, symptoms of hyperinsulinism, usually when the ectopic portion is adenomatous or adenocarcinomatous.

A diagnosis of pancreatic heterotopia may be considered tentatively when submucous tumour with intact mucosa is identified radiologically, but for the final diagnosis, histological examination is usually necessary. It has been suggested[8] that the pain produced by heterotopic tissue may be caused by any of the following mechanisms: (1) Interference with the passage of food through the pylorus by the tissue masses producing spasm of the stomach, or the pylorus, or both. (2) Interference with the passage of peristaltic waves and resultant retention of food. (3) Peptic ulceration of pancreatic enzymes produced by ectopic glands. (4) Malignant or benign tumour formation.

In the case presented, the pain may have been caused by obstruction of the pylorus by the protruding mass.

SUMMARY

1. A case of pancreatic heterotopia is reported.

2. Attention is drawn to the difficulty of making a preoperative diagnosis.

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THE ACCREDITATION OF GENERAL PRACTITIONERS

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[No one is better qualified than is Dr. Victor Johnston for putting forward the point of view of the general practitioner. In the following paper he discusses a problem which presents great difficulties. How shall the general practitioner be given the recognition which his place and work deserve? Other trained men have special degrees or certificates. Can this be similarly put into effect for the general practitioner? —EDITOR.]

EVERY FAMILY in Canada should be attached to a family doctor who would look after 90% of their illnesses and counsel them on the employment of specialists and specialist services. The rôle of general practitioners of medicine today is that of efficient doctors to families and personal physicians to individuals, guiding them through the maze of modern medicine. This is far from being a static area of usefulness. It changes at its borders as knowledge increases in the whole wide field of preventive and curative medicine.

There is no doubt that the quality of care rendered to the public by general physicians is at its highest peak in the history of medicine, yet the status of the practitioner is not at its former high level. The status of general practitioners should be dependent at all times on the competence of the work done. They ultimately stand or fall on whether or not they are authorities and masters of their craft.

There are several reasons for this lowered opinion of the care provided by family physicians. One is the very high quality of work done by the specialist. The ability to conquer otherwise fatal types of illness through the application of specialized knowledge has made a deep impression on the minds of people. Another reason is that there is an increasing dependence on specialization in every realm of business and industry. As the specialists become better trained to do particular tasks they are given certificates of competence. When the layman seeks medical care he knows that a certificate means special ability and feels more confidence in the doctor who holds such a certificate.

Another factor in the lowered status of general practitioners is that general practice itself is changing from a well integrated whole into a number of diversified units, with medical care now received from various sources in business, industry and government departments of health. Moreover, the physician himself has tended to become more of a business man and less of a family confidante. In becoming more impersonal he has lost some of the esteem and confidence of the people under his care.

The successful implementation of a policy envisaging able family physicians for all our people is dependent upon many factors. It calls for realization by the public that this is the best and most economical way to bring modern medicine to them. It calls for a very high degree of cooperation between general practitioners and specialists, with the former supplying the fullest possible information about the patient he refers for an opinion or treatment, and the latter appreciating that the more the family physician knows the more often will he detect a need for help. It calls for orienting professional training more toward family medical care, with a chair of general practice in every medical school. It calls for access to a general hospital by every general practitioner to give treatment within his competence. But most of all it calls for general physicians themselves to devote more time and effort to establish their own standards, and to accept more responsibility for public and professional education of family doctors.

These are conclusions of the Section of General Practice of the Canadian Medical Association. They are not visionary ideas of my own. They were arrived at after 2 years' study by the executive of that section, whose membership comprises representatives from all the provinces. In their deliberations they were assisted ably by educationalists; by representatives of government, of the Royal College and our French speaking confrères; by hospital and public health authorities and by members of the executive of

the Canadian Medical Association. We were informing ourselves during these 2 years. The Section of General Practice has attempted to take the long range view that its only worth-while object is an improvement in the training, teaching and practice of general physicians. The needs of the people and the interests of the whole profession have been kept foremost.

The executive of the Section of General Practice in Toronto in March this year unanimously approved of the principle of accreditation of competent general practitioners, and asked the Canadian Medical Association to set up machinery to implement it. At the annual convention in June in Banff both the general meeting of the Section and the General Council of the Canadian Medical Association gave approval to the principle of accreditation. A joint committee from the Section and the executive of the parent body is now studying this and will report.

What do we mean by accreditation? We mean that there will be established criteria of training and experience which, when combined with excellence of practice and frequent postgraduate education, will be recognized in a manner that will come to have meaning to the public, the profession and the hospitals.

How can accreditation be accomplished? We believe through the formation of a College of General Practice. We are requesting that such a body be established with powers to estimate and pass on the competence of general physicians. This would be done only when a doctor asked for it. The College would also work out good standards for general practice. In doing this its efforts would be one of assistance, relying on the co-operation of the individual physicians.

The suggested organization would be an "academic headquarters" aiding and directing the activities of general practitioners. It could start in a humble way and develop gradually. We have called it a College of General Practice. Other titles have been suggested such as "Association", "Faculty" and "Academy" of General Practice, though none of these seem to be acceptable to very many. The title should be chosen whose usually accepted meaning most nearly fits the functions of the organization.

In attacking the complex problem of accreditation certain principles would be recognized. The aim would be to improve standards slowly and not abruptly. The average competence, and not that of a few, would be raised, with professional relations maintained always in a healthy state. We believe it might be achieved by basing the standards partly on academic standing and partly on a functional assessment. That is, it would be both by examination and by a functional type of audit. The latter would be an evaluation of the type of practice carried on. This might include the submission by the doctor of 50 case histories with a proportion of them of patients referred to consultants. The question of the age of the practitioner would receive serious consideration. The training and qualifications would be higher for the recent graduates desiring accreditation.

Why do we want accreditation? The animating motive is the establishment and maintenance of the highest possible standards in general practice. The prestige of the practitioner will be increased accordingly, with improved public relations of the whole profession. This could well have an important beneficial bearing on the changing economic order of medicine.

Our educationalists are asking for it. Dr. G. E. Hall, President of the University of Western Ontario, in a leading article in the *Canadian Medical Association Journal* of May, 1952 states "that some means of establishment of identity of the well trained general practitioners must be worked out." He adds that "the requirement of graduate training for general practice must be clearly defined and must be sufficiently extensive to promote a feeling of accomplishment in those who have met those requirements." Dr. Hall goes on to state that we "could establish criteria which would no longer allow a man to obtain a degree or rating and then spend the rest of his life completely untouched by the progress of medicine." At the present time specialist training has priority in the University centres. Defining general practice more closely and with more exact standards would seem to be a step toward obtaining a more realistic approach to the training for it. It seems logical to us that medical schools centre their undergraduate training on the production of family physicians with the training of

specialists and the provision of refresher instruction for family physicians as a postgraduate wing of their program. It has been pointed out to us frequently that there are many large general hospitals in non-teaching centres suitable for training programs for general practitioners.

Another reason for accreditation is that general practitioners in many of our large cities are in need of and are asking for some body or authority to stand behind them and certify to their abilities. They have no one to do this at present and are handicapped when they deal with hospitals. The only entree to some hospital staffs is through the possession of a certificate from a certifying body. These hospital staffs have found certification a most convenient--and I presume a reasonably reliable—yardstick for membership, though originally such certification in a specialty was not intended as a license.

You might say accreditation will bring another division in our ranks, that it would be recognizing a group of a sort of super general practitioners or specialists in general practice. That would be a disastrous result. We are not thinking at all of going across this land and immediately classifying its general physicians. But we do believe that a beginning must be made by themselves for themselves in laying down standards for their work. We believe this is fundamental in providing adequate medical care for the public and in solving some of our own professional problems.

You might say there are many ways of judging a doctor other than by examination. We know this is true. Many of us have been loath to depart from a trust in the rugged individualism and initiative of doctors to meet the demands of modern medicine. But we have been forced to recognize that examination and certification is one of society's best tried methods of protecting itself in any field whose workers use expert knowledge.

We are impressed by what the American College of Surgeons has done for surgery in this country. We are informed that about the year 1913 a few surgeons banded together and called themselves a College. They were it. They laid down arbitrary requirements for membership. One of these was that a member must submit 50 case histories of his own. They soon found that there was not a surgeon in North America with such a list. This requirement was put on the table—but only temporarily. With the co-operation of their members they proceeded with further regulations to raise the standards of surgery to the benefit of all medicine. Whenever the certification of specialists has been started the same fear has been held—that it would create another unsound split in the profession. The result, however, has been an increasing excellence of specialist training with a resultant raising of the standard of specialist care.

The establishment of a College of General Practice will cost considerable money. In deciding on the principle involved general practitioners will have to take into account that its financial responsibility is largely theirs. Help may come from other sources but some sacrifices on their part will be necessary. The time may now be opportune to appeal to general physicians for funds. I am convinced that such an appeal would raise a very substantial sum. It would be an evidence of our faith in this undertaking. Let us test ourselves out.

The Section of General Practice believes that the accreditation of general physicians is a basic part of any comprehensive plan to improve the quality of general practice and to enable its practitioners to deal more equitably with the public, the Royal College of Canada, our Universities and the medical boards of large city hospitals. It is correct for us to seek the counsel and help of the Canadian Medical Association. We are the Canadian Medical Association along with all the other doctors of Canada. We are seeking only what the specialists already have accomplished for themselves. We wish to have their support.

We want more good general practitioners. We desire, particularly for the young men and young women entering this work, that they have special training for the rôle of family physician, that this field be more clear and precise with standards of excellence and that beds and facilities for the treatment of their patients be available in their neighbouring hospital. With these conditions met we feel that they can provide the best of medical care at reasonable cost to the people, and that they will be proud to make this their life's work.

L'ACCREDITATION DES MEDECINS EN PRATIQUE GENERALE

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[Nul n'est mieux qualifié que le Dr. Victor Johnston pour exprimer le point de vue de ses confrères en médecine générale. L'article suivant, préparé par le Dr. Johnston, envisage un problème des plus complexe. De quelle façon le médecin en pratique générale peut-il recevoir la considération que lui méritent son rang et son œuvre? D'autres hommes sortis de la même école possèdent des diplômes ou des certificats spéciaux. Mais lui, ne serait-il pas possible de le munir d'un passeport semblable? —LE RÉDACTEUR.]

CHAQUE FAMILLE canadienne devrait s'assurer les services d'un médecin de famille qui s'occuperait de soigner 90% de leurs maladies et qui, au besoin, les dirigerait vers un spécialiste et des soins spécialisés. De nos jours, le rôle des médecins en pratique générale consiste à être des médecins compétents auprès des familles et des médecins particuliers auprès des individus, et en mesure de les guider dans le labyrinthe de la médecine moderne. Ces fonctions sont loin d'être un champ statique pour leurs activités. En effet, ses frontières varient au fur et à mesure que s'accroîssent les connaissances dans le domaine de la médecine préventive et curative.

Il faut admettre que la qualité des soins prodigués au public par les médecins en pratique générale a maintenant atteint son plus haut niveau dans l'histoire de la médecine mais par contre le statut du médecin n'a fait que rétrograder. Le statut des médecins en pratique générale devrait, en tout temps, être en fonction de leur compétence. En fin de compte, le médecin s'affirme ou périclite selon qu'il est—ou non—une autorité au un maître dans son métier.

Il existe plusieurs raisons pour justifier cette opinion amoindrie des services que dispense le médecine de famille. L'une de ces raisons réside dans la très haute qualité du travail accompli par le spécialiste. Le public a été profondément impressionné par les résultats merveilleux qu'ont obtenu les spécialistes, par l'application de techniques particulières, dans la conquête de certains types de maladies jusqu'ici jugées fatales. Une autre raison peut être attribuée au fait que, dans tous les domaines des affaires et de l'industrie, on compte de plus en plus sur la spécialisation. Au fur et à mesure que le spécialiste acquiert une plus grande maîtrise dans certains travaux particuliers il se voit décerner un certificat de compétence. Ainsi, lorsque le profane recherche des soins médicaux il sait qu'un certificat signifie une compétence particulière et sa confiance va naturellement vers le médecin qui détient un tel certificat.

Un autre facteur qui contribue à cette situation c'est qu'en elle-même, la pratique générale de la médecine subit des changements en ceci qu'au lieu de demeurer une unité parfaitement intégrée elle se divise maintenant en une variété d'unités distinctes—notamment, les soins médicaux qu'offrent diverses sources dans le milieu des affaires; les services de santé industriels et gouvernementaux. En outre, le médecin lui-même a modifié son attitude, tendant davantage à devenir un homme d'affaires qu'à demeurer le confident de famille. En rendant moins personnels ses rapports avec ses patients il a perdu quelque peur leur estime et leur confiance.

Plusieurs facteurs entrent en cause lorsqu'il s'agit de mettre en œuvre avec succès une politique visant à pourvoir notre population d'un nombre suffisant de médecins de famille capables. D'abord faut-il que le public se rende compte que ce genre de service est le meilleur et le plus économique lui permettant de bénéficier des progrès de la médecine moderne. Il faut également qu'il existe une coopération entière entre les médecins en pratique générale et les spécialistes, le premier devant fournir le plus de détails possible concernant le patient qu'il réfère au spécialiste pour une opinion ou un traitement, et ce dernier devant apprécier que plus le médecin de famille est compétent plus il sera en mesure de déterminer s'il a besoin d'assistance. Il est donc essentiel d'orienter davantage la formation professionnelle vers les soins familiaux en prévoyant une branche de pratique générale dans toutes les écoles de médecine. Il importe que chaque médecin en pratique générale ait accès à un hôpital général pour y donner les soins dans les limites de sa compétence. Mais par dessus tout les médecins en pratique générale devront eux-mêmes consacrer plus de temps et plus d'efforts à l'établissement de leurs propres capacités et être prêts à assumer plus de responsabilité en ce qui concerne la formation des médecins de famille au point de vue social et professionnel.

Ces observations sont les conclusions de la Section de la Pratique Générale de l'Association

Médicale Canadienne. Ce ne sont pas des idées visionnaires issues de ma seule imagination. Ces conclusions ont été atteintes après deux années d'études par l'exécutif de cette Section dont les membres comprennent des représentants de toutes les provinces. Au cours de leurs délibérations ils ont bénéficié de l'aide précieuse de spécialistes en matière d'éducation, de représentants du Gouvernement, du Collège Royal et de confrères de langue française; ils ont eu la coopération d'un certain nombre d'autorités hospitalières et de l'hygiène publique ainsi que des membres du Conseil exécutif de l'Association Médicale Canadienne. Ces deux années nous ont permis de nous renseigner. La Section de la Pratique Générale s'est efforcée de viser à longue portée en fixant comme objectif ultime une amélioration dans la formation, l'éducation et la pratique des médecins de famille. On a visé premièrement et surtout les besoins de la population et les intérêts de la profession entière.

En mars de cette année, à Toronto, l'exécutif de la Section de la Pratique Générale a approuvé à l'unanimité le principe de l'accréditation des médecins en pratique générale d'une compétence reconnue, et a prié l'Association Médicale Canadienne d'établir un mécanisme pour le mettre en œuvre. Lors de la convention annuelle de juin, à Banff, l'assemblée générale de la Section et le Conseil général de l'Association Médicale Canadienne ont ratifié le principe de l'accréditation. Un comité conjoint de la Section et de l'exécutif du corps-mère étudie présentement la question et soumettra son rapport.

Que voulons-nous dire au juste par "accréditation"? Voici: il s'agirait d'établir un critère de la formation et de l'expérience lequel, combiné avec l'excellence de la pratique et les cours de perfectionnement post-scolaires fréquents, serait reconnu de telle manière qu'il aurait une signification pour le public, la profession et les hôpitaux.

Comment cette accréditation sera-t-elle accomplie? Nous sommes d'opinion qu'il faudrait créer un Collège de Pratique Générale. Nous réclamons un organisme qui soint investi des pouvoirs nécessaires pour estimer et certifier la compétence des médecins en pratique générale. Ce pouvoir ne s'exercerait qu'à la demande d'un médecin. Le Collège aurait également pour fonctions de fixer des standards adéquats pour la pratique générale. L'organisme, en un mot, ferait œuvre utile en comptant sur la coopération individuelle de tous les médecins.

L'organisme proposé serait en quelque sorte un "centre académique" ayant pour fonctions de prêter assistance aux médecins en pratique générale et de diriger leurs activités. Ses débuts seraient modestes mais il serait appelé à se développer graduellement. Nous avons pensé l'appeler "Collège de la Pratique Générale". D'autres noms ont été suggérés, par exemple "Association", "Faculté" et "Académie" de la Pratique Générale, mais aucun de ces titres n'a paru convenable à la plupart des membres. Il semble préférable de chosir un nom dont la signification même rende bien l'idée des fonctions que devra accomplir l'organisme.

En abordant le problème complexe de l'accréditation, il importe de ne pas perdre de vue certains principes. Le but de l'organisme serait d'améliorer les standards graduellement et non pas du jour au lendemain. La compétence moyenne—et non pas celle de quelques médecins seulement—serait élevée en conservant les relations professionnelles dans un état d'harmonie. Nous croyons que ceci pourrait être achevé en basant les standards en partie sur la formation académique et en partie sur une èvaluation fonctionnelle, c'est-à-dire qu'on procéderait à la fois au moyen d'un examen et d'un genre de vérification fonctionnelle. Cette dernière comporterait une analyse du genre de pratique exercée. On pourrait inclure dans ce dernier point la soumission par le médecin d'un rapport couvrant 50 cas dont une proportion comprendrait des patients référés à des spécialistes-conseils. Il serait attaché une importance particulière à l'âge du médecin. Dans le cas des nouveaux diplômés désirant un certificat d'accréditation, le standard de formation et de qualifications serait plus élevé.

Et pourquoi recherchons-nous cette accréditation? Le motif qui nous anime est l'établissement et le maintien de standards aussi élevés que possible pour la pratique générale. Le prestige du médecin sera rehaussé en conséquence, amenant ainsi des relations plus parfaites entre la profession entière et le public. Il est fort possible qu'il en résulte sur la situation économique variable de la médecine une influence considérable et profitable.

Nos spécialistes en matière d'éducation réclament un tel organisme. Le Dr. G. E. Hall, Président de de la "Western Ontario University",

dans un article important publié dans le *Journal de l'Association Médicale Canadienne* de mai 1952, déclare que "on doit trouver quelque moyen d'établir l'identité des médecins en pratique générale pourvus d'une compétence reconnue". Il ajoute en outre que "il importe de définir clairement la nécessité d'une formation universitaire en pratique générale et cette formation devrait être suffisamment étendue pour produire chez ceux qui remplissent cette condition un sentiment de fierté et de confiance en soi". Le Dr. Hall déclare encore que "nous pourrions établir un critère qui, non seulement permettrait à un homme d'obtenir un dîplôme ou un classement mais l'empêcherait de passer le reste de sa vie complètement indifférent aux progrès de la médecine".

A l'heure actuelle, la formation spécialisée reçoit la préférence dans les centres universitaires. En définissant la pratique générale de façon plus juste et en fixant des standards plus précis, il semble que nous aurions atteint une compréhension plus réaliste de la formation requise pour se consacrer à cette sphère d'activités. Il nous paraît logique que les écoles de médecine devraient concentrer leurs efforts pour orienter leurs sous-gradués vers la médecine générale, réservant la formation spécialisée et les cours de perfectionnement pour les médecins de famille à qui elle offrirait cette instruction dans son programme sous la manchette des cours post-scolaires. On nous a signalé à maintes reprises qu'il existe, dans les centres non-enseignants, un bon nombre d'Hôpitaux généraux importants qui se prêteraient admirablement bien à des programmes pour la formation de médecins en pratique générale.

Une autre raison qui justifierait la recherche d'un système d'accréditaton c'est que dans plusieurs de nons grandes villes, les médecins en pratique générale ressentent le besoin de s'appuyer sur une organisation ou une autorité quelconque sur laquelle ils pourraient compter pour attester leur compétence, et ils réclament une tel organisme. Personne n'est en mesure de leur rendre ce service à l'heure actuelle et ils doivent faire face à certaines difficultés dans leurs contacts avec les hôpitaux. Certains hôpitaux ne leur ouvrent leurs portes que sur présentation d'un certificat émanant d'une autorité compétente. Ces hôpitaux estiment qu'un certificat est acceptable—et je suppose suffisamment digne de foi pour l'admission d'un médecin dans leur institution, quoique à l'origine un certificat de spécialiste n'ait pas été destiné à tenir lieu de license.

On pourra prétendre que l'accréditation sera un autre instrument de divisions dans nos rangs, que cette mesure consacrera un groupe de médecins de famille d'une catégorie soi-disant supérieure ou de spécialistes en pratique générale. Ce serait là un résultat désastreux. Nous n'avons nullement l'intention de parcourir le pays et de classifier sur le champ nos médecins en pratique générale. Cependant, nous avons la conviction qu'il faut commencer quelque part et que c'est aux médecins eux-mêmes qu'il échoit de se mettre à la tâche pour leur propre bénéfice en établissant des standards pour régir leur travail. Nous sommes convaincus que c'est là une condition fondamentale pour assurer des soins médicaux satisfaisants à la population et pour résoudre quelques-uns de nos problèmes professionnels.

Vous nous direz peut-être qu'il existe un grand nombre de moyens autres qu'un examen pour juger un médecin. Et vous aurez raison. Plusieurs d'entre nous ont hésité à se départir de la confiance qué leur inspiraient l'individuelisme farouche et l'initiative des médecins pour satisfaire aux exigences de la médecine moderne. Mais nous avons été forcés de reconnaître que l'examen et le certificat sont l'une des méthodes les mieux éprouvées qui soient à la disposition de la société pour se protéger dans toute sphère où les travailleurs doivant témoigner de connaissances expertes.

Nous sommes émerveillés par tout ce qu'a accompli le Collège américain des Chirurgiens pour la chirurgie dans notre pays. On nous fait remarquer qu'aux environs de l'année 1913 une petite poignée de chirurgiens s'organisèrent en petit groupe et se donnèrent le nom de "Collège", et en effet ils furent un Collège. Ils établirent des normes rigides pour ceux qui voulaient faire partie de leur Collège. L'une des clauses de ces règlements stipulait que chaque membre devait soumettre 50 cas parmi ses patients. Ils ne tardèrent pas à constater qu'il n'y avait en Amérique du Nord pas un seul chirurgien en mesure de produire une telle liste. Cette exigence fut mise sur le tapis—mais pas pour longtemps. Avec la coopération de leurs membres ils entreprirent, au moyen de règlements supplémentaires, de hausser les standards de la chirurgie pour le bénéfice de la médecine

entière. Chaque fois qu'il a été question d'organiser un système d'accreditation de spécialistes la même crainte a surgi—que cette accréditation provoquerait une autré division malsaine au sein de la profession. Or, le résultat a été tout autre car il a produit une formation spécialisée d'une qualité de plus en plus remarquable et, partant, une hausse du standard des soins spécialisés.

L'établissement d'un Collège de Pratique Générale entraînera une mise de fonds considérable. En se prononçant sur le principe mis en cause, les médecins en pratique générale devront réaliser que la responsabilité financière leur incombe principalement. Une certaine assistance viendrra peut-être d'autres sources mais ils devront eux-mêmes consentir une certaine somme de sacrifices. l'heure est peut-être bien choisie pour inviter les médecins en pratique générale à offrir leur souscription. Je suis convaincu qu'un tel appel produirait des fonds considérables. Ce serait là une preuve de notre confiance dans l'entreprise. Voyons ce dont nous sommes capables.

La Section de la Pratique Générale estime que l'accréditation des médecins en pratique générale constitue une partie intégrante de tout plan compréhensif destiné à améliorer la qualité de la pratique générale et pour permettre à ses discibles de mieux servir le public, le Collège Royal du Canada, nos université et les conseils médicaux des hôpitaux de nos grandes villes. Il est tout à fait à propos que nous recherchions les conseils et la collaboration de l'Association Médicale Canadienne. Nous, et tous les autres médecins du Canada, *sommes* l'Association Médicale du Canada. Ce que nous voulons c'est ce que les spécialistes ont déjà obtenu eux-mêmes. Nous sollicitons leur appui.

Nous voulons un plus grand nombre de médecins en pratique générale et nous voulons qu'ils soient compétents. Nous désirons, surtout pour les jeunes gens et jeunes femmes qui se consacrent à ce travail, qu'ils reçoivent une formation spéciale pour remplir le rôle de médecin de famille, que cette sphère soit plus explicite et plus précise dans ses standards d'excellence et que leurs hôpitaux locaux leur accordant des lits pour leurs patients et leur facilitent l'accès à leurs salles. Une fois ces conditions assurées nous sommes certains qu'ils seront en mesure de fournir à notre population, à des conditions raisonnables, ce qu'il y a de mieux en fait de soins médicaux, et qu'ils seront fiers de consacrer leur vie à cette œuvre admirable.

PULMONARY VOLUMINA AND VENTILATION STUDIES IN CHRONIC BRONCHITIS

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THE FOLLOWING DETERMINATIONS were made in an attempt to demonstrate the effect of chronic bronchitis on pulmonary function.

For the purposes of this study, chronic bronchitis was defined as a respiratory tract infection of at least two years' duration characterized by chronic cough and expectoration, but with no radiological evidence of persistent active parenchymal inflammatory disease or neoplastic involvement.

The group studied were all veterans who had been hospitalized either because of an acute exacerbation of their bronchitis or for a pension investigation. All had symptoms of sufficient severity to interfere with their ordinary daily activity.

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MATERIAL AND METHODS

Twenty-five subjects, all males between the ages of 25 and 63, were studied. All studies were done as soon as possible after admission to hospital and before any therapy was started. Exceptions were those subjects admitted with exacerbations of their chronic bronchitis. These were studied immediately following the return to normal of their temperatures. Sputum studies were carried out on admission before any therapy was started. Whenever possible smears and cultures of fresh sputum were studied daily for three consecutive days.

A complete case history and physical examination was done on each subject. None of the patients selected had clinical or laboratory evidence of either right or left ventricular heart failure or of any other systemic disease which would interfere with pulmonary function. Circulation

times, both arm to tongue and arm to lung, were done whenever possible. Electrocardiograms were done on the majority of the patients. Chest x-rays both in maximum inspiration and in maximum expiration were made in 22 of these patients together with fluoroscopic examinations of the chest. Subjects were also seen by an allergist and appropriate sensitivity tests performed to rule out an allergic asthma.

TABLE I.

PHYSICAL DATA, MAJOR SYMPTOM AND PHYSICAL SIGNS IN 25 CASES OF CHRONIC BRONCHITIS

Case	*Age*	*Age at onset*	*Height in CM*	*Weight in pounds*	*Major symptom*	*Physical signs*
			1. LITTLE OR NO HYPERINFLATION			
1	35	24	173	130	chest pain	normal
2	32	21	185	186		râles at rt. base*
3	38	32	172	188	dyspnœa	rhonchi pr. expir.†
4	29	21	173	137	chest pain	rhonchi pr. expir.†
5	25	23	167	136	dyspnœa	rhonchi
6	61	35	167	170	dyspnœa	rhonchi
7	30	23	180	135	fatigue	normal
8	39	31	170	145	dyspnœa	normal
9	56	21	151	122	dyspnœa	indefinite
10	52	49	171	175	dyspnœa	rhonchi pr. expir.†
11	60	28	173	130	dyspnœa	normal
12	31	22	171	187	dyspnœa	rhonchi pr. expir.†
			2. MODERATE HYPERINFLATION			
13	50	44	175	214	dyspnœa	rhonchi
14	57	48	161	149	dyspnœa	rhonchi pr. expir.†
15	38	27	174	172	dyspnœa	rhonchi
16	63	29	167	108	dyspnœa	râles at rt. base*
17	54	44	162	115	dyspnœa	rhonchi
18	49	35	170	150	dyspnœa	rhonchi pr. expir.†
			3. SEVERE HYPERINFLATION			
19	60	54	173	115	dyspnœa	rhonchi
20	61	50	160	115	dyspnœa	normal
21	41	30	171	130	dyspnœa	rhonchi
22	48	38	173	172	dyspnœa fatigue	rhonchi
23	54	43	165	156	dyspnœa	rhonchi pr. expir.†
24	52	49	170	119	dyspnœa	rhonchi
25	49	38	172	124	dyspnœa	rhonchi pr. expir.†

¶excluding cough.
†prolonged expiration.
*bronchiectasis excluded by bronchogram.

The following terminology was adopted for this study:

The *inspiratory capacity* (complemental or complementary air) is the maximum volume of gas that can be inspired from the normal expiratory level.

The *expiratory capacity* (reserve or supplemental air) is the maximum volume of gas that can be expired beyond the normal expiratory level.

Vital capacity available (two stage or combined vital capacity) is the sum of the maximum inspiratory and expiratory capacity measurements. This volume was used in computing total lung capacity.

Vital capacity usable (one stage vital capacity) is the maximum volume of gas that can be expired in a single expiration following a maximum inspiration. Volumes in this paper refer to vital capacity usable unless otherwise stated.

Residual air is the volume of gas remaining in the lungs after a maximum expiration.

Functional residual air (functional residual capacity, subtotal volume, midcapacity, equilibrium capacity) is the volume of gas remaining in the lungs after a normal quiet expiration.

Maximum breathing capacity (maximum minute ventilation) is the maximum volume of gas that can be breathed into and out of the lungs in a given unit of time. This is usually expressed as litres per minute (L/M).

Total capacity (total lung volume) is the sum of the vital capacity and the residual air, *i.e.*, the volume of air contained by the lungs when in a state of maximum inflation.

Residual air measurements were made by a modification of the open-circuit method of Darling, Cournand and Richards[4] introduced by Dr. George Wright, Director of the Physiology Laboratory, Trudeau Foundation for Research. This modification consisted of a preliminary determination of vital capacity and expiratory capacity followed by immediate residual air determination. This was made possible by the use of a four-way valve with mouthpiece attached, which allowed the subject to be switched from the closed circuit Benedict-Roth spirometer directly into the oxygen rinsing circuit. A correction could then be made if the subject was turned into the oxygen circuit above or below his normal expiratory level. Further slight modifications consisted in the use of a water trap for the collection of an alveolar sample, and the collection of expired gas in Douglas bags instead of a spirometer.

Duplicate determinations were made on each subject in order to exclude unsatisfactory studies.

Maximum breathing capacity determinations were done using essentially the same technique as originally described by Hermannsen.[10] Direct collection and measurement of expired gas in a Tissot type gasometer was done in duplicate. Collection time was usually thirty seconds, but in some instances a shorter period of time was used due to interruption of the test by a bout of coughing. A specially designed low resistance, high-velocity valve was used. Interval between tests was twenty minutes, the larger of the determinations being selected as the M.B.C. Additional determinations were done in most cases twenty minutes after the inhalation of an aerosol mixture of 10 minims of 1% neosynephrine and 2.25% vaponefrin. The prediction formula used was that of Dr. George Wright, *viz.* 228 litres (1.82 x age in years) ± 17.6%.[1]

Vital capacity determinations were in all cases done in the supine position following a 20 minute rest period. All measurements were made by means of graphic recording using a Benedict Roth 8 litre B.M.R. machine, with the carbon dioxide absorber in the circuit.[1] The prediction formula used was that of Baldwin, Cournand and Richards,[2] *viz.* (27.63–[0.112 x age]) x height in cm.

Total capacity prediction formula used was also that of Baldwin, Cournand and Richards[2] *viz.*, T.C. equals V.C. x 0.80 for the age group 16 to 34; for the age group 35 to 49, the factor is 0.766; for 50 years old and over, the factor is 0.692.

RESULTS

The data in the 25 cases studied are summarized in Tables I and II. The cases have been divided into three groups according to the increasing percentage of total capacity represented by the residual air.

Group 1 consist of those cases in which the residual air constitutes less than 40% of the total capacity, *viz.*, 12 cases.

Group 2 consists of those cases in which the residual air constitutes more than 40% and less than 50% of the total capacity, *viz.*, 6 cases.

Group 3 consists of those cases in which the residual air constitutes more than 50% of the total capacity, *viz.*, 7 cases.

DISCUSSION

It is generally agreed that on the basis of normal ageing processes, the residual air may constitute up to 40% of the total capacity or lung volume without indicating structural abnormality or altered pulmonary function.[1, 3, 5] When the residual air constitutes more than 40% of the total capacity, a state of hyperinflation exists, which may or may not be attended by pulmonary disability.[5] On the basis of available information, all cases having a residual air constituting more than 50% of the total capacity, have had associated pulmonary disability. Division of subjects studied has been on the probability of: (1) no disability, (2) possible disability. (3) almost certain disability.

When pulmonary hyperinflation is attended by pulmonary insufficiency, it is probable that structural abnormality, as seen in emphysema, is present; or alternatively bronchial or bronchiolar narrowing without structural abnormality. Bronchial narrowing may be due to bronchial and peribronchial fibrosis, bronchospasm, and/or mucosal congestion (œdema) and retained secretions. In obstructive emphysema, there is thought to be a combination of bronchial and peribronchial fibrosis in addition to the presumed loss of lung elasticity and disruption of alveoli.[6]

Low residual air determinations may occur in disease states where the total lung volume or capacity has been reduced, *e.g.*, pulmonary fibrosis. Such cases, however, will still show an increase in the ratio of residual air to total capacity. Similarly cases of non-ventilated bullous cysts may show a reduction either of total capacity or residual air, or both.

An increase in residual air implies that the lungs do not empty as completely as do normal lungs. As this expiratory insufficiency progresses the lungs tend to be always in an inspiratory state and the thorax in an inspiratory position. Thus the inspiratory capacity of the individual is reduced. The respiratory musculature is forced to work harder and to work at an increasing

TABLE II.

LUNG VOLUME DETERMINATIONS AND VENTILATION MEASUREMENTS IN 25 CASES OF CHRONIC BRONCHITIS ARRANGED IN ASCENDING ORDER OF INCREASE OF RESIDUAL AIR PERCENTAGE OF TOTAL LUNG CAPACITY

	Vital capacity			*Total capacity*		*Residual air*			*Max. BR. capacity**		
Case	*Available*	*Usable*	*% of predicted*	*Observed*	*% of predicted*	*Observed*	*% of predicted*	*RA** / *TC* x 100	*Bd†*	*Ad¶*	*% of predicted (Wright)‡*
1. LITTLE OR NO HYPERINFLATION											
1.	4.31	4.29	104%	5.71	106%	1.40	112%	25%	87	95	52%
2.	4.67	4.28	96%	6.34	113%	1.67	148%	26%	105	105	62%
3.	4.20	3.90	97%	5.22	100%	1.40	115%	27%	105		65%
4.	4.72	4.65	102%	6.77	132%	2.05	201%	30%	119		68%
5.	4.65	4.45	107%	6.61	113%	1.96	118%	30%	108	126	59%
6.	3.35	3.10	86%	4.87	94%	1.52	95%	31%	78	82	63%
7.	4.47	4.37	100%	6.60	121%	2.13	196%	32%	112		65%
8.	4.28	3.72	98%	6.40	130%	2.12	184%	33%	144	157	92%
9.	3.17	3.17	90%	4.97	97%	1.80	114%	36%	97		77%
10.	4.04	3.80	102%	6.46	125%	2.42	152%	37%	35	62	27%
11.	3.06	2.88	80%	4.86	93%	1.80	112%	37%	95	95	80%
12.	3.12	2.80	68%	5.03	84%	1.91	104%	38%	73	78	42%
Average	4.00	3.78	95%	5.65	109%	1.85	138%	31.9	105		68.4%
2. MODERATE HYPERINFLATION											
13.	2.55	2.72	66%	4.35	78%	1.80	105%	41%	72	84	53%
14.	1.89	1.62	49%	3.25	66%	1.36	89%	42%	88	88	71%
15.	2.78	2.71	68%	4.78	92%	2.00	170%	42%	92	98	58%
16.	2.97	2.97	93%	5.32	115%	2.35	164%	44%	112		99%
17.	3.51	2.82	79%	6.79	135%	3.22	201%	47%	48	56	36%
18.	3.41	2.85	62%	6.70	115%	3.29	270%	49%	46	46	31%
Average	2.85	2.61	69.5	5.19	100%	2.33	166%	44.1	76.3		58%
3. SEVERE HYPERINFLATION											
19.	2.22	2.20	61%	4.66	89%	2.44	151%	52%	104	104	88%
20.	2.86	2.72	82%	5.75	124%	2.89	201%	52%	60	58	51%
21.	2.42	2.31	59%	5.07	99%	2.67	222%	53%	49	46	32%
22.	2.16	1.63	43%	4.62	91%	2.46	107%	53%	70	101	50%
23.	2.17	2.03	56%	5.25	101%	3.08	191%	58%	47	43	37%
24.	2.82	2.50	67%	6.79	124%	4.51	301%	61%	30	50	23%
25.	1.89	1.67	44%	5.67	116%	3.80	346%	67%	43	40	31%
Average	2.36	2.15	58.8	5.40	106%	3.12	231%	55%	57		44.5

**$\frac{\text{Residual air}}{\text{Total capacity}} \times 100$

*Maximum Breathing capacity

†Before bronchodilator drugs

¶20 minutes after bronchodilator drugs

‡Wright's formula: Max. Br. Cap. =288—(1.82 x age in years) ±17.5%

mechanical disadvantage. Necessity to increase minute ventilation results in early fatigue of the respiratory muscles. Decrease of the maximum breathing capacity results from the above factors, and is shown by the presence of shortness of breath.

Gas exchanged between alveoli and perfusing blood may also be interfered with due to unequal alveolar ventilation, and to the larger volume of residual air with which the tidal air must mix.

In considering the results obtained it is noticeable that the age of onset and duration of disease have no obvious correlation with the degree of hyperinflation found.

VITAL CAPACITY

Vital capacity successively decreases with increasing residual air total capacity ratio. In group

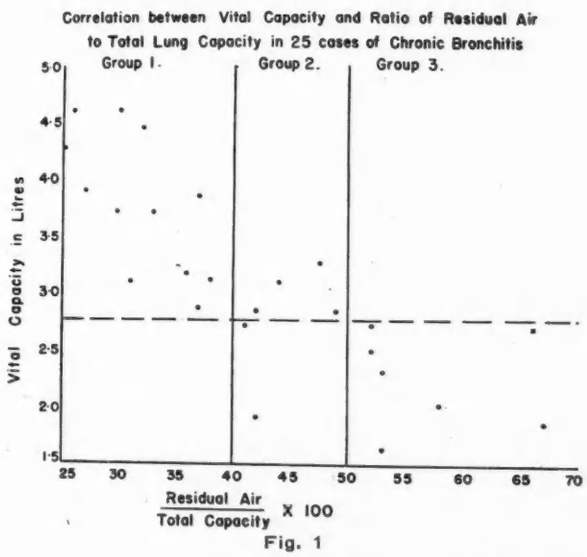

Fig. 1

3, there is not one vital capacity above 2.75 litres, and in group 1 there is not one vital capacity below 2.80 litres.

Examining Table II and Fig. 1, it is evident that there is good correlation between vital capacity and the ratio of residual air to total capacity. As the vital capacity decreases in volume the ratio increases although there is some overlap in groups 2 and 3. Nevertheless in a co-operative subject the vital capacity in chronic bronchitis may be used as an index of the ratio of residual air to total capacity. If the vital capacity is less than 2.70 litres, it is possible that the ratio is increased above normal and there is some pulmonary disability. The series is small, however, and this finding may be more apparent than real, for in other pulmonary disorders with larger series this correlation was not found.[8, 9]

MAXIMUM BREATHING CAPACITY

Maximum breathing capacity requires a high degree of patient co-operation. Two of the cases under consideration were noted as not co-operating, *viz.*, 10 and 12, results have accordingly been discarded in attempting to appraise the significance of the maximum breathing capacity. All those in group 1 had a maximum breathing capacity above 75 L/M, while in group 3 only one was above 75 L/M.

The effect of "bronchodilator and vasoconstrictor" drugs was tried in twenty cases. In ten of these an increase in M.B.C. ranging from 5 to 66% was observed; in six cases the increase was greater than 15%.

The maximum breathing capacity is a test of the subject's ability to move air in and out of his lungs at high velocity. The volume obtained depends on the subject's desire to co-operate maximally, on co-ordinated neuro-muscular chest movements, a normal thoracic cage, an unobstructed tracheo-bronchial tree and normal pulmonary elasticity. A reduction in maximum breathing, therefore, does not necessarily indicate disease of the lungs proper.

Generally the maximum breathing capacity is reduced out of proportion to the decrease in vital capacity in subjects with obstruction of the airway or diminution of the elasticity of the lungs. Results obtained in this study showed this disproportion between maximum breathing capacity and vital capacity (see Fig. 3). Similar results have been observed in obstructive emphysema.[9]

The correlation of the M.B.C. to the increase in the ratio of residual air to total capacity was almost as good as the correlation of the V.C. to this ratio. Examination of Fig. 2 and Table II indicates that probable pulmonary disability, as indicated by increase in the ratio of residual air to total capacity, was present in all cases showing a maximum breathing capacity of 70 L/M. or less, and also in all cases in which the M.B.C. was less than 50% of the predicted normal.

RESIDUAL AIR INCREASE

In 13 of the 25 cases studied, it was observed that hyperinflation of the lungs was present. In some of these cases, it was possible that the hyperinflation produced no disability, and that

the result noted was more or less normal for their age.

Although he had an increase in his ratio of residual air to total capacity, case 16 (aged 63) had a vital capacity and M.B.C. within the normal range. This increase in ratio was probably insignificant since he suffered no pulmonary disability on this account. Case 19 is probably a similar case. He also was 60 years of age with similar findings.

Case 14 had a reduction of his total capacity (66% of predicted normal) and also a decrease of his V.C. and residual air (89% of predicted). This reduction in lung volume was borne out by lung roentgenograms which showed loss of volume of both lower lobes. His onset of symptoms dated back to a severe pneumonitis. It is known that diffuse fibrosis may be a sequela of this condition,[6] and presumably he represents such a case, since he had more clinical disability than is evidenced by the increase in ratio.

Case 13, admitted for pension investigation, was thought to be malingering. His residual air (Table II) is quantitively normal, but the vital capacity and total capacity are both reduced thus producing an increase in the ratio of residual air to total capacity.

Exclusion of cases 13, 16 and 19 leaves 10 cases in whom there appears to be a state of hyperinflation sufficient to produce pulmonary disability.

Hurtado[7] has shown that in patients suffering from acute asthmatic attacks, there was a marked pulmonary hyper-inflation as shown by increase in the ratio of residual air to total capacity. He noted a large decrease in this ratio following the subcutaneous administration of a bronchodilator drug (epinephrine 1/1,000). Although we have not repeated this experiment, marked increase (up to 66%) has been noted in the M.B.C. following aerosol bronchodilator and vasoconstrictor drugs (neosynephrine and vaponefrin). It is generally assumed that bronchial narrowing reduces the M.B.C. and that the increase in M.B.C. produced by bronchodilators and vasoconstrictors is due to relief of this obstruction. If this is true, the residual air would also probably decrease following the release of air trapped behind narrowed bronchioles, and concomitantly dyspnœa would be lessened.

Cases 22 and 24 are possible instances of such a state. Both showed a high residual air to total capacity ratio with considerable clinical pulmonary disability; both also showed a marked increase in M.B.C. coupled with subjective improvement 15 minutes following the use of an "aerosol bronchodilator" mixture.

The remaining group 3 cases did not, however, experience any increase in M.B.C. on this regimen, and presumably experienced no decrease in residual air.

The latter group of cases are presumed to have irreversible structural changes which did not permit of improvement, whereas the first two cases presumably had a large component of reversible obstruction still amenable to therapy. Spain[6] states that chronic bronchitis causes fibrosis within and around the walls of bronchi and bronchioles. The non-responsive cases would fit such a description, whereas those still respond-

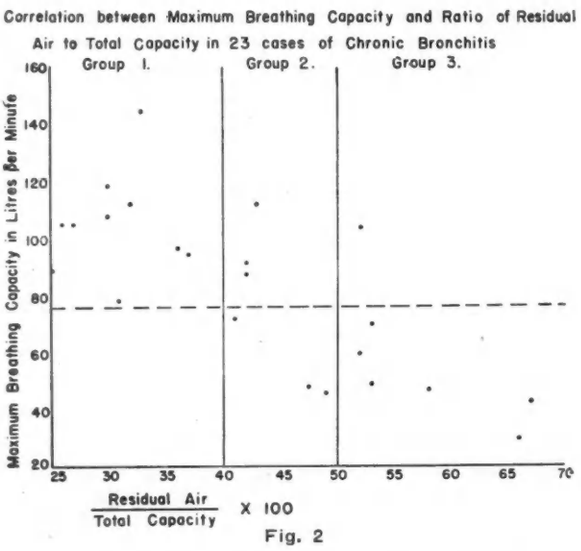

Fig. 2

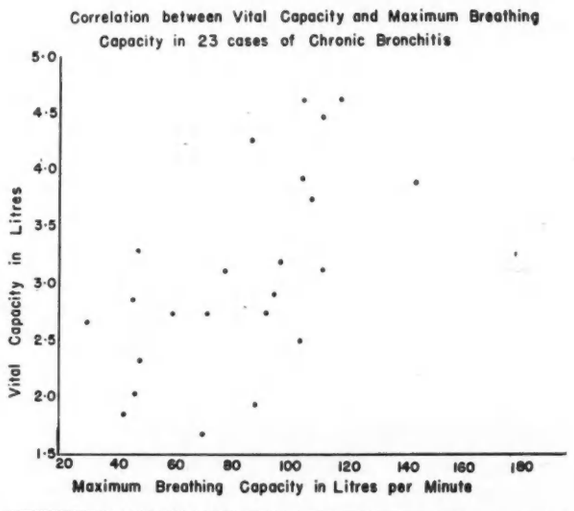

Fig. 3

ing favourably to bronchodilators, may have mucosal congestion with or without bronchospasm as the predominant feature.

SUMMARY

Lung volume and ventilation determinations were performed in twenty-five cases of chronic bronchitis.

Increase in the ratio of residual air to total lung capacity appeared to give the best index of pulmonary disability in these cases. When the residual air constituted between 40 and 50% of the total capacity moderate pulmonary disability was usually present; when the residual air exceeded 50% of the total capacity, pulmonary disability was almost invariably present.

Marked decrease in vital capacity or in maximum breathing capacity was seen in all cases showing a residual air ratio in excess of 50% of the total capacity.

The decrease in vital capacity and in maximum breathing capacity, was not always parallel, but was in general agreement.

Aerosol bronchodilators and vasoconstrictors proved useful in the treatment of some of these cases. This response or lack of response may provide a means of separating advanced cases from those still in a reversible condition.

No relationship could be demonstrated between the history of duration of symptoms, age of onset and the degree of hyperinflation.

Hyperinflation of the lungs is observed quite frequently in conjunction with chronic bronchitis. It seems probable that certain individuals with a constitutional inadequacy develop emphysema as a complication of chronic bronchitis.

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From the time of Hippocrates surgery has ever been the salvation of inner medicine. In inner medicine physicians have dwelt too much on dogmas, opinions and speculations; and too often their errors passed undiscovered to the grave. The surgeon, for his good, has had a sharper training on facts; his errors hit him promptly in the face. (Sir Clifford Allbutt, *Lancet*, 1922.)

CASE REPORTS

AMŒBIC EMPYEMA

H. B. S. de GROOT, M.D. and
HOWARD L. READ, B.Sc., M.D., *Regina*

THE PROBLEMS arising in the diagnosis of an illness with mixed or vague symptomatology, or in a disease which can be considered as a *rara avis* in this country, may be considerable, as is shown in the records of the patient discussed below.

Mr. K., 38 year old, truck driver, was born in Japan and came to this country in 1931. When first seen he had been suffering from general malaise for three weeks, with some bouts of fever. His temperature was 103.4° F. and, having a red moderately sore throat, he was admitted to the hospital under the diagnosis of septic throat. The throat cultures showed growth of *Strep. viridans*, sensitive to penicillin, aureomycin and streptomycin. His sedimentation rate was 94 mm. in 45 minutes. White blood count 17,200 with an otherwise normal blood picture. Urinalysis: slight trace of albumin, otherwise normal. Kahn test was negative. Agglutination for typhoid, para-typhoid A-B and Bang's disease negative. Chest x-rays: no abnormality. Mantoux tests negative. Under treatment with antibiotics and sulfadiazine the temperature came down to normal and he was discharged as cured.

However, four weeks later, he had to be re-admitted, this time not so much with fever, (his temperature was 101° on one day only) but for a dry cough and tenderness in the right upper abdomen, mostly on deep breathing. Physical examination showed the palpable rounded edge of the liver to be more tender than usual. The laboratory findings revealed the following: W.B.C. 14,800, otherwise normal. Hæmoglobin 11.8 gm. Sedimentation rate, 75 mm. in 45 minutes. Hymans van den Bergh reaction: direct—negative, indirect—0.40 mgm. bilirubin in 100 c.c. Urinalysis, normal. Blood protein: 5.6 gm. %. Albumin—globulin ratio: 1.9 to 1. Cephalin-cholesterol flocculation negative. Stool repeatedly negative for ova or cysts, also negative for occult blood. Sputum, negative on direct examination and culture for acid-fast organisms; and blood culture sterile, Malaria parasites were not found.

On x-ray his right diaphragm was elevated, slightly hazy and irregular. The x-ray examinations of gall bladder and kidneys were normal. Casoni reaction was negative. Weinberg reaction could not be done. O.T. reaction remained negative. After three days his temperature became normal without further treatment and he was discharged after twelve days. On review after one week he had more dullness in his right lower chest and on puncture 55 c.c. of straw coloured fluid was removed.

After consultation with the Tuberculosis Clinic and ample discussion he was classified as tuberculous pleurisy with effusion. Despite the negative sputum examination and negative tuberculin test he was tentatively accepted to be admitted to the Sanatorium in four weeks time. At home he became extremely dyspnœic and his chest had to be tapped several times, the fluid getting more and more sero-sanguinous and in steadily increasing quantities. In the sanatorium his condition did not improve and after two weeks' stay he was classified as "non-tuberculous; probably intra-thoracic growth".

His wife, being again interviewed about his history, suddenly remembered that he had suffered an attack of diarrhœa years ago, with passing of mucus and blood, but amœbæ had never been discovered. His stools were examined again and, lo and behold, cysts were discovered, some typical and some atypical. He was sent

back to the hospital, diagnosed as empyema, caused by *Entamœba histolytica*, either caused by pulmonary amœbiasis with hepatitis or by a perforated liver abscess. His temperature was up to 102° on admission, and a course of emetine hydrochloride, 60 mgm. daily was instituted for twelve days, on which he greatly improved. This was supported by 1.5 gm. aureomycin daily for three weeks and thereafter 2 c.c. dicrysticin daily for eight weeks.

The empyema was treated by repeated paracenteses; the fluid being now more the chocolate milk type. To avoid the formation of thick pus and heavy fibrous lining of the empyemic cavity, 10 c.c. varidase solution was injected after each paracentesis. Altogether 11 paracenteses were performed over a period of seven weeks and a total of 5,900 c.c. of exudate obtained. Never were amœba discovered in the exudate, only red blood cells and a few lymphocytes being present. In all a total of 110 c.c. of varidase was injected during this time. However, after the last three taps, the patient felt very miserable with chills, vomiting and temperature up to 103.4°, three to four hours after the instillation of the varidase. As these injections were performed some twenty-four days after the first instillation, we considered this an allergic reaction toward the varidase after sensitivation by the previous injections.

Before he left the hospital he received another course of emetine injections supported by vioform and chinofon by mouth. Prior to discharge a bronchoscopic examination showed a normal bronchial tree. His exercise tolerance was quite normal again and he felt ready to start his normal duties as soon as his services are required.

Now, six months after discharge, he has a definite flattening of his right chest wall with decreased breathing movements. However, he feels no shortness of breath. His body weight is quite up to normal and his sedimentation rate is back to 12 mm. in 45 minutes. The x-ray shows elevation of the right diaphragm with slight thickening of the pleura at the base and along the axilla, and there is no sign of fluid.

SPONTANEOUS JEJUNAL PERFORATION

D. BOWERS, M.D., *Ponteix, Sask.*

THE FOLLOWING CASE HISTORY has settled in my mind the controversy over medical and surgical management of perforated peptic ulcers. It will give the proponents of operative therapy ground for support, and the advocates of conservative therapy food for thought. This patient was seen shortly after I had read Seeley's[1] review of 110 cases of perforated duodenal ulcer treated conservatively.

A 62-year-old French-Canadian farmer presented himself at 10.00 p.m. on November 28, 1951, complaining of severe abdominal pain. Four hours earlier, while drinking beer, he had been seized by a sudden sharp upper abdominal pain which had caused him to collapse, and which had persisted until he sought medical care. He had not vomited. On examination, his temperature was normal, and there was no evidence of shock. The entire abdomen was rigid, but tenderness was confined to the upper abdomen. There were bilateral inguinal herniæ which were easily reduced.

This man was an inveterate beer drinker. For 20 years, he had complained of epigastric discomfort. Two radiological examinations of the upper gastro-intestinal tract during that time had been reported negative. Nevertheless, for a few months prior to the episode described above, he had followed, with the exception of beer, a standard peptic ulcer regimen with considerable relief of distress. In addition, he was known to have intermittent bronchial asthma, and symptoms of coronary insufficiency.

The diagnosis of perforated peptic ulcer seemed obvious. The surgical consultant (Dr. S. Chiasson of Vanguard, Sask.) agreed with the diagnosis and advised immediate operation. With Seeley's[1] optimistic report fresh in my mind, and with the knowledge of the patient's alcoholism and cardiopulmonary disease, I hesitated before agreeing to operation.

At laparotomy (performed by Dr. Chiasson), free fluid welled out of the abdomen when the peritoneum was opened. The anterior surface of the stomach and duodenum appeared normal. No perforation could be seen or felt on their posterior surfaces. Methylene blue introduced into the stomach through a naso-gastric tube did not stain the intraperitoneal fluid. A prepyloric gastrostomy was done to visualize the posterior walls of the stomach and duodenum. The mucosa appeared normal, and the gastrostomy was closed. The large bowel was examined from the cæcum to the rectum for a perforated diverticulum or malignancy with negative results. Then, a systematic examination of the small bowel was begun. About three feet distal to the ligament of Treitz, the jejunum presented an elliptical rent, ¾" in length and ¼" in width. A biopsy was taken from the margin of the perforation. The perforation was closed; the abdomen drained and closed.

The patient's postoperative course was uneventful, and he was discharged on December 9, 1951. The biopsy was reported by Dr. G. Kent of Moose Jaw, Sask., as showing "a somewhat hæmorrhagic, but otherwise normal, intestinal mucosa".

I have no explanation for this spontaneous jejunal perforation. The cause is usually erosion by some ingested solid. Recoveries without closure are rare.

The diagnosis of a perforated peptic ulcer is considered easy. In fact, in the controversy regarding therapy, the diagnoses have been unquestioned. This experience will influence me towards operative closure of "perforated peptic ulcers", until I am able to distinguish clinically a perforation of the stomach and duodenum, from a perforation of the lower bowel.

I wish to thank Drs. S. Chiasson, D. S. P. Weatherhead, and G. Kent and the staff of Hôpital Gabriel, Ponteix, Sask., for their help in caring for this patient.

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In a review of the 260 cases of adeno-carcinoma of the thyroid it was noted that there were 26 patients who entered with complaint of a painless, asymptomatic mass, most frequently situated in the side of the neck. In preliminary examination of the thyroid gland by inspection and palpation it was observed to be essentially normal.—H. H. Searls, *et al.*, *California Med.*, 76: 62, 2, 1952.

CORTISONE ACETATE IN THE TREATMENT OF ACUTE PHOSPHORUS POISONING

J. R. D. BAYNE, M.D., J. C. BECK, M.D., L. LOWENSTEIN, M.D. and J. S. L. BROWNE, M.D., *Montreal*

THE MINIMAL LETHAL DOSE of ingested yellow phosphorus is 60 mgm.[1 to 5] although recovery may follow ingestion of amounts up to 780 mgm. Ingestion of amounts greater than 780 mgm. is almost invariably followed by death.[6 7] Rubitsky and Myerson[6] have reviewed the derangement of carbohydrate, protein and fat metabolism which results from severe injury of the liver in phosphorus poisoning. Impaired glycogenesis results in depletion of liver glycogen and is followed by increased protein catabolism and fatty infiltration of liver, heart, intestinal tract, kidney and other organs. Typical portal cirrhosis of the liver has been observed to follow phosphorus poisoning both experimentally[8] and in humans.[6, 9]

The patient herein reported ingested 825 mgm. of yellow phosphorus or approximately 14 times the minimal lethal dose. As was to be expected she developed severe symptoms and signs of phosphorus poisoning, and by the fourth day the prognosis seemed ominous. Thorn and his coworkers[10] have shown that the 11, 17-oxysteroids enhance glycogen deposition and conjugation and detoxification in the liver. Encouraging results with ACTH and cortisone in the treatment of acute viral hepatitis and in cirrhosis of the liver, especially when associated with fatty infiltration of the liver, have been reported by a number of observers.[10 to 14] In view of the grave condition of the patient four days after ingestion of phosphorus it therefore seemed warranted to administer cortisone.

Z.B., a 29 year old Ukrainian displaced person was admitted to the medical service of the Royal Victoria Hospital with a history of having ingested the contents of a four ounce tube of rat poison† dissolved in a glass of water, four hours previously, in an attempt at suicide. Past history was difficult to obtain because of language difficulties but was apparently non-contributory.

Physical examination revealed a mildly depressed, obese young woman, with normal temperature, pulse and respiration and a blood pressure of 140/80. The abdomen was soft, with no areas of tenderness; the liver and spleen were not palpable. Vomiting began on admission and it was noted that the breath and vomitus had a garlic odour.

Laboratory examination on admission revealed a normal urine, a white blood cell count of 5,800, a hæmoglobin of 12.8 gm. % and a sedimentation rate of 7 mm. per hour (Westergren).

The patient's stomach was lavaged with a 1:2,000 potassium permanganate solution and a mixture of egg white and milk was given by Levine tube. Intravenous glucose saline was administered and the patient was encouraged to take a liquid diet high in protein and carbohydrate. Liver function tests were markedly abnormal 12 hours after admission , but apart from some anorexia and nausea the patient appeared reasonably well.

Forty-eight hours after admission the patient complained of mild right upper quadrant pain, chilliness and her temperature suddenly rose, reaching a peak of 103° on the following day. Coincident with the fever, jaundice appeared and the patient became apathetic, unresponsive, looked toxic and it was felt that she was in a grave condition. Purpuric spots appeared over the whole body and she developed profuse vaginal bleeding. Urinalysis at this time revealed albumin, urobilinogen, bile and numerous white blood cells and casts. The prothrombin time was 59 seconds (normal 20 seconds). Liver function tests were more abnormal than on the initial examination. The electrocardiogram with within normal limits.

Intravenous glucose saline was continued and large doses of vitamin K were administered. On the fourth hospital day the patient was less responsive, vomiting was more severe and the jaundice was rapidly deepening. The blood pressure remained normal, however, and at no time was there evidence of circulatory collapse or renal insufficiency. The prothrombin time was 124 seconds and the white blood cell count was 1,100 with 7.0% neutrophiles, 57% lymphocytes and 36% monocytes. Fresh whole blood and Amigen were administered along with penicillin and the latter was continued for the next four days.

Thus, four days after the phosphorus ingestion cortisone administration was considered because of the apparently grave prognosis. It was hoped that it would favour glycogen deposition in the remaining liver cells, hence preventing further necrosis and that it would stimulate the bone marrow.

Two hundred milligrams of cortisone acetate (saline suspension) were given by mouth immediately, but because the patient vomited shortly afterward, the dose was repeated intramuscularly at several sites and was continued at a dosage of 50 mgm. every 6 hours. Within 48 hours the patient appeared greatly improved and at the end of 72 hours the temperature had fallen to 99°, nausea and vomiting had ceased and she was able to take food by mouth. The urine showed a trace of albumin, urobilinogen and one plus bile. The prothrombin time had fallen to 36 seconds and the white blood cell count was 4,300 with 46.0% neutrophiles, 9% eosinophiles, 36% lymphocytes and 9% monocytes. On the fifth day of cortisone therapy the white cells were 7,000 with 67% neutrophiles and the prothrombin time had dropped to a normal of 19 seconds.

Cortisone acetate, 50 mgm. every six hours, was given orally for the next three days. On the eighth day of cortisone therapy this dose was reduced to 25 mgm. every six hours. At this time the patient's liver was found to be palpable and tender; it gradually receded but continued to be palpable until her discharge forty days after her admission. It was hoped that such a prolonged period of bed rest might minimize post-necrotic scarring.

The jaundice gradually cleared and the liver function tests improved slowly. Restricted activity and the ingestion of a high carbohydrate, high protein and high caloric diet was encouraged at home, and cortisone, 100 mgm. daily in four divided doses, was continued in the hope of reducing the amount of post-necrotic scarring.

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†Rat-Nip is marketed in four ounce tubes containing two and a half ounces net weight of rat-nip of which 1.1% is yellow phosphorus.

The patient was seen at weekly intervals in the Out-Patient Department. Cortisone was gradually reduced and finally stopped 65 days after the initial episode.

The patient has continued well for 10 months with the exception of an occasional upper respiratory infection and some right upper quadrant pain after working as a cleaning woman. When last seen, 9 months after the initial episode, the cephalin cholesterol flocculation test was still 3+ and the thymol turbidity was slightly elevated.

DISCUSSION

The outcome of poisoning from the ingestion of yellow phosphorus is largely determined by the amount ingested, although a variable individual response has occurred following ingestion of 50 to 400 mgm. of yellow phosphorus.[1 to 6, 15] Until the report by Diaz-Rivera *et al.*[7] from Puerto Rico survival after taking 200 to 400 mgm. was rare and had not been reported after ingestion of more than 400 mgm. The group reported 56 cases who ingested a rat exterminator paste similar to that taken by our patient. Thirty-three patients ingested 780 mgm. or less of yellow phosphorus and only six of these patients died; of the 23 patients who took over 780 mgm. only two patients survived. One patient died after the ingestion of only 190 mgm. Dosage was the most important determinant of the outcome. On the basis of this data, death probably should have resulted after the ingestion of 825 mgm. of yellow phosphorus by our patient.

On the basis of observations by Diaz-Rivera *et al.*[7] there was additional evidence pointing to a grave prognosis in this patient; the use of a liquid vehicle for the phosphorus; the rather late onset of vomiting; the passage of about five hours before the application of gastric lavage; the unusually early laboratory evidence of severe liver damage; the early onset of vaginal bleeding and purpura with hypoprothrombinæmia which failed to respond to vitamin K; the marked granulocytopenic leukopenia; the early hyperpyrexia; and the early severe jaundice, apathy and toxicity of the patient. The absence of renal insufficiency in spite of urinary evidence of severe renal damage, the maintenance of a normal blood pressure throughout and the normal electrocardiogram were more encouraging prognostic signs.[7]

Certainly there seemed to be a direct relationship between the administration of cortisone and the striking clinical and laboratory improvement of the patient, although this dramatic improvement could have been partly due to penicillin and blood transfusions. It is difficult to assess the effect of cortisone on necrosis and post-necrotic scarring of the liver in this patient.

Until cortisone was administered the sequence of events was fairly typical of acute phosphorus poisoning, including the temporary lull of clinical symptoms after the initial nausea and vomiting. The laboratory evidence of liver damage within a few hours after the ingestion of phosphorus does not seem to have been previously reported. The hæmorrhagic diathesis with hypoprothrombinæmia also occurred earlier than is usually reported. Although leukopenia is frequent the granulocytopenia and leukopenia were exceptionally severe in our patient.

TABLE I.

Date	*Dec. 12–50*	*Dec. 14*	*Dec. 15*	*Dec. 18*	*Dec. 23*	*Jan. 4–51*	*Jan. 12*	*Jan. 24*	*Feb. 7*	*Feb. 21*	*March 21*	*April 18*	*May 23*	*July 4*	*Sept. 12*	*Normal Level*
Day of study....	2	4	5	8	13	25	33	45	59	74	102	130	165	207		
Direct bilirubin mgm. %.....	0.43		3.1	3.1	2.3	1.13	0.85	0.55	0.45		0.3	0.3				
Total bilirubin mgm. %.....	0.95		4.2	4.4	3.15	1.7	1.15	0.95	0.55	0.45	0.46	0.5	0.55			0.1 - 0.8
Cephalin cholesterol....	4+	4+		4+	4+	3+	3+	2+	2+	3+	3+	3+	3+	4+		0.1+
Thymol turbidity	4.5	5.7		11.6	14.2	5.7	5.35	7.65	8.3	6.1	6.6	5.1	3.95	2.9	5.35	4
Thymol flocculation...	TR	+		2+	+	+	Neg.	Neg.	Neg.	Neg.	TR	Neg.	2+	Neg.	TR	1+
N.P.N. mgm.%..	23.8			18				24.2	42.5	20.4	29.4					15.0 - 30.0
Total protein gm.–100 c.c....				6.78				6.85	6.96		7.58	6.78	7.37			6.9 - 8.5
Albumen gm.–100 c.c....				3.7				4.35	5.48		5.56	5.25	6.02			4.4 - 6.0
Globulin gm.–100 c.c....				3.08				2.5	1.48		2.02	1.53	1.35			1.5 - 3.0

SUMMARY

A case of acute yellow phosphorus poisoning in a 29 year old female is reported and the pertinent literature is briefly reviewed. 825 mgm. of yellow phosphorus, approximately 14 times the minimal lethal dose, were ingested by this patient. Because of the large amount of phosphorus ingested, the clinical course and the laboratory findings, the early prognosis seemed

grave. Dramatic improvement followed the administration of cortisone.

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SPECIAL ARTICLE

MEDICAL ETHICS

R. D. ROACH, M.D., M.R.C.P., *Moncton, N.B.*

[*The following paper has a rather peculiar as well as melancholy element. Dr. Roach, the author, had been elected to the presidency of the New Brunswick Medical Society but became ill soon afterwards and never recovered enough to carry on his duties. He wrote this message six weeks before his death, the imminence of which he fully realized. So that he is speaking with all the serious care of a dying man.*

After explaining his inability to act and thanking those who carried on the work, he takes up the matter in which he was so deeply interested.—EDITOR.]

FOR MANY YEARS I have had the honour of being your representative on the C.M.A. Committee on Ethics and Credentials. During those years no really important matter was submitted to that committee and the few that were so submitted concerned mostly the complications that would probably arise because of members of the profession becoming associated with certain commercial enterprises. However, it has seemed to me that it would not be unprofitable for us to turn our attention briefly to some of the aspects of Medical Ethics in this period of changing values and a new order in the world and in our profession.

The fundamentals of ethics remain unchanged through the ages and at the time of our graduation we all subscribed to that ancient code handed down to us from the Father of Medicine, Hippocrates. From that Grecian centre of medicine and ethics on the Island of Cos, these principles were brought down to us and adopted by nearly all medical men in the world and are expressed anew in the ethics of the Sermon on the Mount. As you know, the Hippocratic Code defines (1) our duties and relationships to each other, and (2) our duties and obligations to our patients.

I have all my life been closely associated with medical men. In my childhood and through my teens these associations were mostly with general practitioners and country doctors. My father was a country practitioner for over forty years and, although I do not remember a great deal of him, as he died when I was only six years of age, I know from the testimony of others that he was of that old type of physicians whose lives might be said to be wholly dedicated to medicine. He used to say that "medicine is a jealous mistress" and that her devotees should not be diverted from their main duties and responsibilities by other interests which are legitimate for the generality of men. It is doubtful if such exclusive dedication to medicine today is wise or in the best interests of either the doctor or his patients. However, a real sense of fellowship in a great world-wide fraternity, sincerely dedicated to the cure and alleviation of sickness and suffering, should be the pride and stimulus of every doctor, reminding him of the covenant he made according to the ancient formula of Æsculapius and Hippocrates and guiding him on his way—his "cloud by day" and his "pillar of fire by night".

In my teens I travelled the highways and byways of a large country district with my uncle as he went his rounds. I learned his philosophy of life and of the practice of medicine while nursing the temperamental eccentricities of the earlier Model-T Ford, pumping tires, removing the occasional fallen tree from the road, and even on one occasion erecting a temporary bridge over which to guide the wobbling wheels. All these experiences assisted me, when I myself became a country doctor, to accept more or less philosophically the long and hard journeys through snow-drifted roads in the pung or old wood-sled behind old Dobbin. However, some of these experiences of the country physicians, both now and in the good, or bad, old days, although often physically hard, were less exhausting than the high tension city practice with crowded appointments and constant pressure for time.

Looking back, I believe that the personal relationships between physicians themselves are much more free and easy than they were in the old days and that, on the whole, petty jealousies

and personal antagonisms are not nearly so common as they were thirty or forty years ago. The lessening of so much personal aggressiveness and keen competition has, however, probably been due more to a prosperous economic state than to a fundamental improvement in our ethical standards.

I would like to draw your attention particularly to a relatively new economic relationship which now bears on our profession and which will increasingly impinge on our ethical economic conscience. I refer, of course, to the condition which has now arisen where a considerable and growing proportion of our income is paid to us, not directly but through some pre-payment type of organization. Examples of this are the Blue Shield in this and several other provinces, and professionally owned and directed prepayment schemes to a lesser extent in this province but to a predominant extent in other parts of Canada.

It is extremely important that every medical man should, in dealing with these organizations, employ the same standards of honesty and ethics as he would in dealing with the individual who is insured with these companies. He must realize that these organizations have available, for payment to him, only the money they have received from their subscribers. Unreasonable demands should not be made on their funds either by "milking" these organizations by improper and exorbitant charges, by admitting patients to hospital who could be treated as efficiently at home, or by keeping patients in hospital after the time when they could legitimately be discharged.

The first type of abuse is apt to occur chiefly with that small number, found in any group of people unfortunately, who are not inherently honest. Much as I regret to say it, a review of some of the experiences of the Blue Shield in these Maritime Provinces shows that, even here, there is present a small number of those who have become known colloquially as "chisellers". The second type of abuse, that is in regard to too prolonged and too frequent hospitalization, is due to a more commendable, but still unjustifiable, desire on our part to please our patients and fall in with their desires. They, like you, often feel that because the paying agency is an impersonal organization, the ordinary considerations of frugality and discretion in the expenditure of money do not apply.

Every doctor should realize the alternative if too great a number forget these fundamental ethical and economic laws. One is that these prepayment schemes may be forced out of business, and the other that they continue in business but with contracts less favourable for the doctor and the patient. They might have to put their dues so high that a large part of the public would be unable to pay them, the very purpose for which they came into existence being thus defeated. So, in his own interest, as well as in the interest of every present and potential subscriber to these prepayment schemes, the doctor should do everything in his power to prevent these abuses on the part of the doctors and strive to educate the public as to the cold realities of these schemes from an economic standpoint.

When we took the oath of Hippocrates, among other important principles to which we subscribed was this: "And whatsoever I shall see or hear, in my intercourse with men, if it be what should not be published abroad, I will never divulge, holding such things to be holy secrets". In recent years I have been somewhat disturbed at so often hearing open and free discussion of medical cases and circumstances of patients in large groups of medical men—also in the presence of technical assistants and even when laymen were present. I do not mean by this the discussion of matters of general interest but of private matters which I am sure no patient would wish divulged.

It is readily admitted that, with modern conditions of practice, where technical assistants are so closely associated with us in medical work, it is difficult, if not impossible, to prevent some confidential information about patients becoming known to them. It, therefore, behooves medical men to select such personnel with almost the same care as they do their wives who, of course, should always be paragons of discretion in this respect. However, allowing for some unavoidable leaks from these confidential sources, I still recall many times when such information was bandied about without any necessity and, had this been known to the patient, I feel sure that person would never again wish to share his confidences with the same doctor. Perhaps these matters are not so important as they seem to me but I think that every step we can take to retain the respect and confidence, which we as a profession enjoyed so abundantly in the old days, is a step in the right direction.

Before closing this message, let me stress for the older members of the local societies how important it is that they should in every way encourage the younger members of the profession to become interested in and take an active part in all the interests of the society as a whole. In my opinion, we have already laid the foundation for the most active and best managed society in the Maritimes and it is the responsibility of those coming along to maintain this activity and interest.

Keeping abreast of the contemporary literature by a systematic program of reading is essential for interns, residents, and assigned staff alike. One method for instilling this habit is the regularly scheduled journal club which should be a part of every intern and residency training program. It should be a part of the educational program at every hospital, even if no interns or residents are assigned. There are several ways in which such a teaching exercise can be handled and, in order to avoid monotony, it might be well to alternate at intervals between these various methods.—W. F. Bowers, *U.S. Armed Forces Med. J.*, 3: 915, 1952.

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HOSPITAL REPORTS

ROYAL VICTORIA HOSPITAL COMBINED STAFF ROUNDS NO. 6

*The Interpretation of Abdominal Pain Part II**

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SURGICAL ASPECTS

R. C. Long, M.D.

THE DIFFERENTIAL DIAGNOSIS of abdominal pain can present a most difficult problem but the location of the pain, the type, whether colicky, steady or boring, its mode of onset and its relationship to eating, urination, defæcation and menstruation may give a lead as to the diagnosis.

Any attempt to estimate the significance of abdominal pain must take into account the difference in pain threshold of various patients, for a sub-sensitive person with a relatively slight pain may be more seriously ill than a patient who is hypersensitive and appears to be in agonizing pain. It must also be remembered that the abdominal organs are not as well endowed with specialized sensory mechanisms as are the skin and those parts of the body which are in contact with the outside world. A tumour of the stomach therefore if it involves neither the cardia nor the pylorus may be completely free of pain until the peritoneum is involved.

Visceral pain is felt in the organ itself with the afferent impulses carried by way of the splanchnic nerves, and initiated by increased visceral pressure caused by either spasm, failure of relaxation or distension of the visceral musculature stretching the nerve terminals lying between the muscle fibres. The intensity of this visceral type of pain is directly proportional to the state of contraction of the muscles and to the rapidity with which the stimulus is applied. Vascular engorgement or inflammatory changes lower the threshold to this type of pain so that it can be produced by stimuli which are not ordinarily effective. This pain is of a deep, dull, steady character and is usually located in the midline. Examples of such pain are found in early intestinal obstruction with distension of the viscus and in the midline pain of early obstructive appendicitis.

Pain having its origin within the abdomen may be broken down into six groups: (1) the pain due to disturbance in function or obstruction to a hollow viscus, *e.g.*, intestinal obstruction, of the bile duct or pancreatic duct by stones; (2) the pain of peritonitis; (3) the pain due to a disturbance of the blood supply from pressure on an organ, or portion of an organ, *e.g.*, volvulus, strangulated hernia, or due to blockage of the main vessels, *e.g.*, embolism or thrombosis; (4) the pain due to a rupture of a viscus without complicating chemical irritants, *e.g.*, rupture of the uterus; (5) the pain due to tension upon supporting structures, or to rapid swelling of an encapsulated organ such as the liver or spleen; and (6) the pain due to disease or trauma to the abdominal muscles.

Disturbance in function and obstruction.—The intestine and associated ductal structures are composed mainly of unstriped muscle fibres having a very low grade of sensibility, with the result that it is possible to crush, cut or tear them without causing pain; but if they become distended, spastic or stretched severe pain will be produced. Such a disturbance is usually associated with some organic disease but may also accompany disturbances in function. The pain, at least in its initial stages, is intermittent or colicky, characterized by a rhythmically intermittent type of pain with brief periods of intense pain followed by longer periods of remission. True abdominal colic is always caused by violent peristaltic action of the involutionary muscle fibres, usually produced in an effort to overcome some obstacle preventing the passage of the normal contents or to rid the bowel of a toxic substance. Such a patient is restless and moves around in his attempt to find relief from the pain. Rigidity of the abdominal muscles may be present and is more marked during the exacerbation of pain and tends to relax as the pain subsides. The relation of the pain to the peristaltic action is of great importance, as the pain and the peristalsis tend to increase and decrease together.

In many of the colics the pain has a relatively specific area of pain reference. That associated with distension of the cyst duct or gallbladder is referred most commonly to the epigastrium and to the right scapula. Common duct or pancreatic duct obstruction produces pain that is felt in the epigastrium and in the upper lumbar regions of the back. The pain of mid-gut obstruction, that is, obstruction of the intestine from the duodenal-jejunal junction down to and including the right half of the transverse colon, is generally felt in the mid-line in the region of the umbilicus. Lesions of the lower sigmoid and ascending colon produce pain felt most often in the left iliac fossa, while in the rectum and lowermost sigmoid the pain may be felt over the sacral area.

Pain due to peritonitis is located over the involved area of the bowel and as the infection spreads the pain tends to become more diffuse. The rate of development of the pain and its intensity are dependent upon the mass of substance which irritates the peritoneum and upon its chemical composition. If a given amount of either gastric juice or pancreatic juice is injected into the peritoneal cavity it will produce a much

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more intense pain than will an equal amount of bacteria-laden fæces. In a perforated peptic ulcer the pain reaches its maximum intensity in a very short time and maintains that intensity, while the pain of a peritonitis of bacterial origin begins slowly and only reaches its maximum intensity after some hours.

The second factor which must be considered is the rate at which the stimulus progresses. If this is sufficiently slow, *e.g.*, in tuberculous peritonitis, no sensation of pain will be felt. If the rate of change of the intensity of the stimulus is very rapid, *e.g.*, perforated ulcer, the pain will be very marked. The location and the extent of the muscle spasm which usually occurs in peritonitis is dependent upon the surface area of the peritoneum involved, and it is usually possible therefore to deduce the site, extent and the rapidity of spread of the peritoneal infection. The intensity of the spasm is, as a rule, directly related to the rate of development of the inflammation. In contradistinction to the patient with intestinal colic the patient with peritonitis lies motionless and supine and the pain is greatly aggravated by any pressure on the abdomen and peristaltic activity is absent.

Disturbances in the blood supply.—It is very difficult to differentiate this from other types of colicky pain except that the onset as a rule is more rapid and the pain itself is more agonizing if the process is at all extensive. The patient may show signs of rapid collapse and will develop signs of acute obstruction. The pain tends to be constant and rather diffuse and not at all well localized.

In conclusion, one must make use of all laboratory, radiological and other aids in the diagnosis and it is not possible as a rule to make a diagnosis of pain on the history and physical examination alone.

OBSTETRICAL ASPECTS

G. B. Maughan, M.D.

I think a dogmatic statement may be made that, except in two conditions, pain due to the pelvic or genital organs is below the umbilicus. These two exceptional conditions are ectopic pregnancy and intra-uterine pregnancy, beyond 6 to 7 months.

As you know, the pain of ectopic pregnancy is not only in the lower abdomen but, because of peritoneal irritation and irritation of the diaphragm pain is felt around the diaphragm and referred up to one or other shoulder.

In intra-uterine pregnancy, of 6 to 7 months, the uterine fundus has risen above the umbilicus and pain for any reason such as degenerating fibroid at the fundal area would be above the umbilicus.

In the consideration of a female with abdominal pain, one must at all times take into account the timing of her menstrual cycle. A common and sometimes acute lower abdominal pain, with which all gynæcologists are familiar, is the so-called "mittelschmerz" or ovulation pain that some women experience regularly, or irregularly, about fourteen days before the onset of a menstrual flow. In many instances this pain may be quite severe.

Another instance of lower abdominal pain related to the timing of the menstrual cycle is found in endometriosis, where typically the pain starts some time after ovulation and gets progressively worse until a day or two before the onset of menstrual flow, and then ceases before the menstrual flow actually begins. Unfortunately for ease of diagnosis the pain of endometriosis is not always typical. Easily confused with the pain of endometriosis is the pain of pelvic infection. One often encounters this in patients with chronic pelvic inflammatory disease. It starts some time, usually a week or so, before the onset of menstrual flow and continues right up and into the onset. With the onset of flow it may change from a dull heavy dragging ache with a sensation as if the pelvic organs are falling out to a crampy type of pain, usually known as dysmenorrhœa.

Acute pelvic inflammation, on the other hand, usually causes acute lower abdominal pain *after* a menstrual period. Acute flare-ups associated with fever and an increased sedimentation rate usually exhibit themselves at the end of a menstrual flow, or a few days after the period is finished.

The pain of ectopic pregnancy starts as a dull ache in one or the other lower quadrant of the abdomen, depending on which tube is involved. This pain becomes acute first in one lower quadrant and spreads quickly throughout the whole lower abdomen after rupture of the tube. When intra-peritoneal bleeding is of sufficient amount the referred pain to the diaphragm and the shoulder is recognized.

Pain caused by a tumour in the genital organs may show itself at any time during the menstrual cycle and can be distinguished in etiology only by pelvic examination. There, of course, it is relatively simple to distinguish the cause of the pain because one can actually palpate a degenerating fibromyoma of the uterus, or a twisted ovarian cyst. One can distinguish these without being too expert at pelvic examination.

A large number of young girls have lost their appendices because of some obstruction to the outflow of the first or second menstrual period, causing hæmatometra or hæmatocolpos. This condition must always be considered in acute lower abdominal pain in a young girl at puberty. The consideration of a patient's menstrual status and actual rectal palpation of the pelvic organs will avoid any mistaken diagnosis.

There are certainly psychogenic aspects to gynæcologic pain. Many women who have absolutely no demonstrable lesion in their pelvic organs refer pain to the pelvic area. The history of recent emotional distress will give at least a lead toward the correct diagnosis.

Some degree of abdominal and/or pelvic pain is usually associated with normal intra-uterine pregnancy. This may be due simply to the stretching of the uterine wall with its peritoneal coat, or, it may be due to a stretching of the supportive ligaments of the uterus. The former pain is usually mid-line and pelvic. The latter is much more often on the right side, presumably because the uterus is twisted to the right during pregnancy. Very often the self-diagnosed pain of appendicitis will be found to be caused by a tender round ligament, a fact which can be demonstrated to the patient by rolling the round ligament under the palpating finger.

The pain of an acute appendicitis in early pregnancy is down in its usual location, in the right lower quadrant. In late pregnancy, however, it is up at or above the level of the umbilicus, still on the right side, but more lateral than usual.

The Braxton-Hicks contractions of uterine muscle in the last trimester of pregnancy may sometimes be interpreted as acute abdominal pain. Differentiation of this from other abdominal conditions is easily made by palpating the rigidity of the uterus at the time of pain appreciation.

Acute epigastric pain in late pregnancy is often seen in severe pre-eclamptic or eclamptic toxæmia. It is due to the formation of sub-capsular hæmatomata in the liver. Many patients have been treated for acute indigestion in late pregnancy when a fulminating toxæmia was the cause of their epigastric pain. In all fairness, the differential diagnosis of upper abdominal pain in late pregnancy is not easy. A minor, but common, upper abdominal pain in late pregnancy is that caused by presure from within outwards on the lower ribs and xiphi-sternum.

In conclusion, if there is any message which a gynæcologist can impart about the interpretation of abdominal pain, it would be that the menstrual status of the patient must always be considered and no final diagnosis on a female with pain below the level of the umbilicus can ever be made without adequate pelvic examination.

UROLOGICAL ASPECTS

A. B. Hawthorne, M.D.

Abdominal pain of kidney origin is a very common condition, but many people, including medical men, do not consider that the kidney can be involved unless there is a pain in the back.

Let us look for a moment at what causes kidney pain, which is of two types, a steady pain due to, first, a dilatation of the kidney pelvis or ureter, or, second, a stretching of the true capsule of the kidney. This dilatation or stretching has to be comparatively sudden as we all have seen large kidney tumours without any pain and large painless hydronephroses.

In addition to this steady pain, there is the colic which is a muscular spasm of walls of the calyx, pelvis or ureter through which something too large is attempting to pass. The severity of the colic depends on the amount of the spasm, and its associated symptoms also vary; these are pallor, sweating, nausea, vomiting, restlessness. This spasm is often localized to the area involved, the pelvis or ureter, but also may be referred by the gastrorenal reflex to many other abdominal organs, or up or down the ureter, as the case may be.

In a typical colic, a stone in the pelvis attempting to enter the ureter, the pain is in the pit of the stomach, there is abdominal tenderness and rigidity, the referred pain may be through to the back or up into the chest, or even absent. In the mid-ureter it may be referred up or down, even down into the bladder or genitals; if into the scrotum, in the case of a high stone the testicular tunics may be painful and tender but not the scrotal skin, whereas in a low ureteral stone the scrotal skin is also tender.

Following the acute pain of the colic a steady pain develops in the loin of the same side; now there is a dilatation of the ureter and pelvis above the obstruction and we have the steady pain syndrome of that sudden stretching.

Many lesions of the urinary tract will thus cause pain in the abdomen; contusion and rupture of the kidney; abscess of the cortex; acute pyelonephritis; sudden hydronephrosis, with or without infection; renal or ureteral stone—often the large stone causes very little pain due to lack of movement and obstruction, and thus no colic. Renal tumour may be accompanied by pain when hæmorrhage occurs into the tumour or even colic from the passage of blood clot.

Pain from the lower ureter may be caused by its dilatation from vesical neck obstruction, and from ureteral reflux which soon follows. These may be slight or severe and being in the lower abdomen are often mistaken for appendicular colic or diverticulitis.

Pain in the bladder independent of pain on voiding does occur in rupture and in inflammation, especially when the bladder coats or perivesical tissues are involved. This is at times seen in infected diverticula and in interstitial cystitis.

Routine examination of the patient from a urological viewpoint can definitely prove if this abdominal pain is surgical, medical or urological. Palpation of the abdomen, examination of the genitals, the urine, the x-ray and cystoscopic findings, will prove beyond a doubt where the urinary tract is involved, and if sufficiently involved so as to account for all the patient's symptoms.

So that in cases of vague abdominal pain of an unexplained nature we should think of the urinary tract as a possible source of trouble and investigate that tract before opening the abdomen to find the cause.

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CLINICAL AND LABORATORY NOTES

REPAIR OF A CORNEAL FISTULA WITH OCULAR MUSCLE TENDON

LOUIS KAZDAN, M.D., *Toronto*

A FORTY YEAR OLD WOMAN had a pyogenic ulcer in the centre of her right cornea. The ulcer extended deeply and upon healing left a defect in the corneal stroma with herniation of Descemet's membrane forming a descemetocele. About two years later while at work, a foreign particle flew into her eye, causing her to press her hand against it with consequent rupture of the descemetocele at the centre of the cornea.

When seen shortly after this there was a fistula of the cornea at the site of the old scar where the descemetocele had ruptured. Aqueous was seen escaping, the anterior chamber was collapsed and the lens was right up against the lesion. The eyeball was soft and slightly injected pericorneally. Vision was reduced to light perception.

The fistula persisted, failing to show any tendency towards spontaneous healing under a pressure bandage for about a week. Cauterizing the edges seemed inadvisable for fear of injury to the lens. Recourse had to be made towards securing and implanting a piece of strong fibrous tissue from elsewhere in the body. The usual source for such tissue is the fascia lata. A more convenient and ready source for this purpose suggested itself in a piece of tendon from the external rectus muscle of the same eye.

The external rectus muscle tendon was exposed to its scleral attachment. A piece approximately the size of the fistula was chosen in its middle third. Four fine silk sutures on small curved atraumatic needles were inserted and the piece of tendon excised peripherally to the inserted sutures. This was transferred, sutures and all to the fistula and stitched to its rim, being careful not to prick the abutting lens. The bulbar conjunctiva was incised all around the limbus, loosened and drawn over the whole cornea with a pursestring suture. A pressure bandage was worn for about two weeks.

Healing was successful. A dense white scar resulted at the site of the lesion. The anterior chamber had reformed, the intraocular pressure returned to normal. With a pin hole disc vision was 20/50, indicating that should it become necessary, an optical iridectomy would result in improved vision.

After the eye had completely quieted down the disfiguring white scar was tattooed with India ink, giving the eye a quite natural appearance. Removal of the piece of tendon from the middle third of the external rectus in no way impaired its function.

The point thought worth reporting was the convenient source of repair tissue for such a purpose there being apparently no mention of it elsewhere.

86 Bloor St. W.

TECHNIQUE FOR PAINLESS HYPODERMIC INJECTION

W. J. McCORMICK, M.D., *Toronto*

FOR SEVERAL YEARS the writer has been using a simple method of effecting painless parenteral administration of medicinal material without the use of anæsthetic agents. It is based on the anatomical fact that the dermal nerve endings, although very closely placed, are separated sufficiently to permit of penetration of small-calibre needles in non-sensitive areas, if such are carefully selected by the archaic method of trial and error. By gently touching the point of the needle to a succession of points on the skin, even though close together, it will be found that some contacts are much more sensitive than others. After several trials, usually less than five, a non-sensitive spot can be found and penetration of the needle can be made perpendicularly at this point with very little or no pain. After penetration the slant of the needle may be changed if desirable, and the liquid should then be injected slowly, so as to permit subcutaneous spreading of same with a minimum of stretching or disturbance of nerve structures.

The writer has found this simple technique very acceptable to patients, many of whom shrink at the suggestion of hypodermic medication because of previous painful experience.

This method is not applicable to intradermal injections, where penetration must be made horizontally, and where obviously contact with nerve endings cannot be avoided.

16 Gothic Ave.

MOBILE PHYSIOTHERAPY SERVICE —AID TO THE FAMILY DOCTOR*

SUPPORTING and supplementing the work of the general practitioner in care of arthritic patients is the mobile physiotherapy service of the Canadian Arthritis and Rheumatism Society. Approximately 30 mobile units operating in more than 24 scattered cities across Canada are bringing needed treatment to increasing numbers of homebound arthritis patients. On the prescription of any qualified doctor practically all types

*From The Canadian Arthritis and Rheumatism Society, 270 MacLaren Street, Ottawa 4, Ont.

of rheumatic disease are accepted for treatment although rheumatoid arthritis appears to be the most frequent diagnosis in cases treated.

It is well recognized today that the crippling effects of rheumatoid arthritis can be largely arrested if early diagnosis and prompt treatment are given. The importance of home physiotherapy treatment in cases where hospitalization is impossible or in some instances unnecessary, is obvious.

The mobile unit accepts patients in many ways —those referred from hospital clinics, from general practitioners, and from social agencies. If a patient having heard of the Society contacts the physiotherapist for aid he is referred back to his own doctor to request treatment. The physician completes the Society's application forms for physiotherapy service, and prescribes the specific measures of physiotherapy desired. Physiotherapy then becomes one part of the over-all program of treatment prescribed by him. The physician who requests the physiotherapy service keeps the patient under his own direct supervision and the therapist contacts him regularly regarding the patient's progress.

Each mobile unit is in the charge of a professionally trained physiotherapist provided with an automobile and portable equipment such as, infra red lamps, wax baths, zoalites, diathermy unit and Delormes exerciser.

The physiotherapist's first call on the patient is an introductory interview in which the aims of treatment are explained, and stress is laid on the fact that the physiotherapist's job is a teaching one to instruct patients and their families in simple home methods of treatment. At that time the physiotherapist explains the services of the Canadian Arthritis and Rheumatism Society. The patient is told what the service costs the Society per treatment and is asked to determine what payment he is prepared to make. It is assumed that charitable donations received by the Society are given to assist those who cannot pay for their own care.

The physiotherapist tries to give the patient an understanding of an exercise program which combined with rest and carried out regularly will help to prevent deformity and maintain and improve muscle tone, joint function and posture. In this way the co-operation of the patient and his family may be gained. It is explained to the patient that when he and his family have learned to carry out his own program of treatment the physiotherapy service will be withdrawn except for periodical calls to supervise and encourage him.

There appear to be many advantages in this type of treatment. First of all, the program is related to the patient's home environment and the patient accepts certain responsibilities himself rather than rely on the therapist and hospital facilities. Furthermore, each unit can provide 2,000 bed-side treatments for from 150 to 200 patients per year at a cost of about $5,000 per unit per year. This may be contrasted with the $2,600 it costs to maintain one patient in hospital for a year.

Mobile units are successfully serving areas of varying sizes but may conveniently serve an area of 75,000 inhabitants. With good geographical planning one unit can serve 10 patients per day. Divisions of the Society are established in all provinces except Prince Edward Island and Newfoundland and where mobile units are established the service is available to all general practitioners, on requisition.

Queries regarding Mobile Unit service in any specific province may be addressed to the National Office of the Canadian Arthritis and Rheumatism Society, 270 MacLaren Street, OTTAWA 4, or to appropriate Division offices of the Society.

British Columbia,1093 West Broadway, Vancouver.
Saskatchewan, 304 No. Crown Bldg., 1821 Scarth Street, Regina.
Alberta, 9304 Jasper Avenue, Edmonton.
Manitoba, 232 Memorial Blvd., Winnipeg.
Ontario, 410 Bloor Street East, Toronto.
Quebec, 771 Burnside Street, Montreal.
New Brunswick, 80 Prince William Street, Saint John.
Nova Scotia, P.O. Box 92, Halifax.

ADVANCES IN THE TREATMENT OF MALARIA*

During the 1939-45 war, when the main source of supply of cinchona products was in enemy hands, the German synthetic products "atebrin" (mepacrine) and "plasmoquine" played important parts in securing Allied victory in the Pacific and South East Asia campaigns. Proguanil ("paludrine") was available towards the end of the war and was the first non-toxic causal prophylactic available for malignant tertian malaria. From these three war-time parent drugs improved derivatives have recently been obtained.

Chloroquine ('aralen', 'nivaquine') a 4-aminoquinoline, is less toxic than mepacrine, does not cause staining, and is more rapid in therapeutic action. Many regard it as the most reliable and best all-round synthetic preparation for the treatment of overt malaria. Two tablets (each 0.25 g., containing 0.15 g. of the base) should be given three times on the first day, followed by one tablet three times daily for four days, and then one tablet every subsequent day for a month. Chloroquine, like mepacrine, does not act on the liver forms of malaria parasites, so that tertian and quartan relapses occur when the administration of these drugs is stopped.

Pamaquin (plasmoquine), an 8-aminoquinoline, has long been known to have a lethal action on gametocytes (sexual cells) in the blood stream, and to have a detrimental effect on the hidden liver forms of *P. vivax* which are responsible for relapses. It is, however, toxic even in small doses, especially in dark-skinned races.

Primaquine, a primary amine corresponding to pamaquin, is less toxic and in a daily dose of 0.015 g., for fourteen days, has been found greatly to reduce the *vivax* malaria relapse rate in U.S. troops returning from Korea.

Proguanil destroys the hepatic stage of the parasite of malignant malaria, *i.e.*, it is a true causal prophylactic. *It is a poor therapeutic agent in overt attacks in non-immunes, and should not be used as such.* It is an excellent non-toxic suppressive of all species and most strains of malaria parasites in the relatively small dose of 0.1 g. daily.

American workers have recently synthesized a new antimalarial drug—pyrimethamine or "daraprim" (Hitchings, Rollo and Goodwin, 1952). This tasteless substance in minute dosage (5 mg.) cleared malaria parasites from the blood of heavily infected children in West Africa; in doses of 0.025 g. once a week it reduced the parasite rate of a heavily infected native population to nil after a few weeks, even in the rainy season.

It is reported (Coatney, 1952) that non-immunes bitten by mosquitoes infected with the notoriously relapsing Chesson strain of *P. vivax*, while taking pyrimethamine in weekly doses of 0.025 g., did not develop an attack of malaria within eight months of stopping the drug. This is a most important advance with a promise of far-reaching effects, but the action of this drug on strains of *P. vivax* from other parts of the world will have to be studied.

*Sir George McRobert, *The Practitioner*, 169: 422, 1952.

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EDITORIAL

THE SECTION OF GENERAL PRACTICE

The history of the development of our Section of General Practice is not a long one. The first definite steps towards its formation were taken in 1947, when a special committee appointed by the Executive met in Vancouver under the chairmanship of Dr. Wallace Wilson. Its general recommendations were towards stimulating clinical research and maintaining high standards of practice, and there were suggestions as to special diplomas. In 1948, at the Toronto meeting, general practitioners voiced the wish to form a General Practitioner Section. But it was only in 1950, at the Halifax meeting, that the restlessness of mind on this matter led to an organization somewhat more closely knit, and with objects more clearly defined.

And yet, the organization of the Section and the definition of its aims are still incomplete. This has not been for lack of hard work or failure in support by the parent body. Those who have led in the effort have shown a devotion and sacrifice of time and money which cannot be too highly praised. The geographical handicaps alone are severe. But perhaps the main difficulty lies in the organization itself of the Section. General practitioners make up three-quarters of the membership of the Association, and from the very outset it has seemed somewhat anomalous for such a large proportion of members to form themselves into a distinct body; indeed this has been clearly recognized from the beginning, and it has been the constant care of all concerned not to produce any sharp separation from the parent body, but rather to add to its effectiveness.

This at once brings up the question of what such a body shall be called, and of what its function shall be. The example of the Academy of General Practice in the States is before us. It has laid down the definition of a general practitioner, and the conditions requisite for membership in the Academy. It has an annual subscription of $15.00 and publishes its own journal, and altogether shows evidence of a closely organized body designed to improve and uphold the standards of general practice. But there is little support for the formation of such a body in Canada. It is interesting to see that the same question is being debated in Great Britain, where indeed a "College of General Practice" was proposed, and very nearly brought into being more than one hundred years ago. There is apparently now in Britain a strong feeling in favour of the formation of some such body which shall guide and co-ordinate the activities of general practitioners. But where such a body shall fit into the world of medicine has yet to be decided. Even the choice of the name is difficult. "Academy", "College", "Faculty", "Institute", "Association", "Society"—all have been considered, and none fits the peculiar need. Probably it will be found that whichever term is chosen will have to be in a sense somewhat different from the ordinary usage.

But by whatever name it is called there is no doubt of the strong desire in Great Britain to so organize general practitioners as to have a body which will help to keep up the highest standards in general practice. As Dr. John H. Hunt says in a capital discussion of the subject:*

> "We want more really good general practitioners, men and women who are general practitioners first and last, specially trained for general practice, proud to make it a life's work, and respecting it as a difficult and special subject—one of the most difficult of all the branches of medicine."

With that view we in Canada will be heartily in accord, and also with his comments on the possible duties of a future College of General Practice; to give leadership; to develop a planned policy regarding the affairs of general practice; to help in medical teaching, both undergraduate and post-graduate; to encourage research in general practice; to improve the status and prestige of general practitioners. Dr. Hunt leaves to the last, but as he says it is not the least, the consideration which has greatly exercised our own Section, namely, the provision of more hospital beds for general practitioners. He thinks too that perhaps a higher diploma may be granted, but he feels this is not an essential item in the scheme —"There are many ways of telling that a man is a good doctor without asking him to sit for an examination."

*"A College of General Practice"; *Brit. M. J.*, p. 1410, June 28, 1952.

Each country will work out its own method of preserving the traditions and elevating the standards of general practice. The problems are many and call for patience and tolerance in relation to the various established bodies in organized medicine.

THE EYE

Recent therapeutic advances have closed many old issues, clarified many outstanding difficulties and initiated new trends. The great blinding diseases of the past, mainly ocular manifestations of general infections such as gonorrhœa, etc., have almost completely disappeared as the result of advances in medicine. Acute phases of ocular inflammatory disease, whether bacterial, allergic or traumatic in origin, can now be effectively controlled by the various antibiotics and cortisone. These agents are not as effective in chronic infective disease and in the later consequences of inflammatory conditions. However, it is probable that these, too, are likely to be overcome. Notwithstanding these advances we know little about some of the diseases peculiar to the eye itself such as glaucoma or cataract. Progress will come only with better understanding of the fundamental physiology of the eye.

There has been a great deal of uncertainty regarding the formation of the aqueous humour of the eye. Biochemical research, supplemented in the last few years by the use of the radioactive tracer technique, has shown that the aqueous humour is probably formed jointly by direct diffusion from blood vessels and by secretion of specialized cells within the eye. Diffusion seems to be largely responsible for maintaining a normal intraocular pressure, while changes in pressure seem to depend chiefly on variations in blood flow through local blood vessels. Naturally, this has stimulated interest in the nervous control of ocular blood vessels and the reflex relationship between the two eyes.

Much has been learned of the complexity of ocular circulation and drainage channels by rendering the opaque white coat of the eye transparent, or alternately, by inserting plastic windows. Another approach has been by injecting plastic materials and then dissolving the tissues to leave a complete cast of the circulatory system. Such studies are being supplemented by parallel anatomical investigations.

These studies may give a better understanding of the changes in glaucoma, a disease of the eye which is characterized by an increase in intra-ocular tension. Glaucoma has generally been held due to some obstruction in the drainage of intra-ocular fluid. This, no doubt, is true when glaucoma supervenes on some obvious disease of the eye. However, it now seems that in the so-called primary glaucomas the early stages are characterized not by persistent rise in ocular tension but by an instability which is itself probably governed by a corresponding instability in the nervous control of local blood vessels. Therefore, the present surgical treatment, construction of artificial drainage channels, must be looked upon simply as symptomatic, leaving the essential cause of the disease untouched. This may also explain why surgery may fail to stop progressive deterioration of sight.

Very little is known about the physiology of the lens or the causes of developing opacities known as cataracts. On the other hand an understanding of this would not only be of relative importance, but it might also give urgently needed information on degenerative processes in general.

Work on the metabolic aspects of the cornea may very well further clarify the factors responsible for maintaining its normal transparency. This in turn should help us to improve surgical repair of corneal opacities and improve chances of success in transplanting grafts of healthy corneal tissue. It is interesting to note that recent studies have shown active respiratory exchanges with air by the layer of cells on the surface of the cornea. This information may well assist in alleviating some of the discomforts and mistiness of vision that are frequently associated with wearing of contact lenses.

A better understanding of the circulation within the eye has made chemotherapy possible in a fairly wide range of intra-ocular infections. New information has also been secured on factors controlling passage of substances through the cornea into the inner eye. Penicillin, for example, is very effective in treating infections of the outer eye by local application. It cannot, however, penetrate in therapeutic amounts into the inner eye by any route. Curiously, entrance into the inner eye seems to depend primarily on the property of fat-solubility.

It has been interesting to review briefly some of the studies being done on problems having to

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do with the eye. However, as in so many fields of medicine and biology in general, progress in practical fields is too often barred by a lack of information on the fundamentals of health and disease. It is therefore most gratifying to see that interest and work in the basic sciences are expanding at a healthy rate. A.H.N.

Editorial Comments

THE FUTURE OF THERAPEUTICS

Why is it that therapeutics has remained the step-child of medical teaching? Diagnosis, on the other hand, has taken on ever increasing proportions, with the inclusion of laboratory and other technical procedures as a matter of course.

The establishment of a correct diagnosis is no doubt of first importance, and without it correct treatment were impossible. The art of linking signs and symptoms with laboratory evidence offers stimulating interest and opportunity; too often at the expense of a consideration of treatment. May it be possible to remedy this situation by a "division of labour"?

If at some time in the future, diagnosis will be the responsibility of the "diagnostician", and treatment the job of the "therapeutician", it will be possible for the latter to find time and peace of mind to concentrate on problems of optimum and up-to-date treatment, and for the former to devote his energies to keeping up with the ever increasing knowledge of elaborate diagnostic procedures.

In practice, we see in some ways tendencies towards such developments already, when general practitioners send their patients to hospital for diagnosis, where technical facilities and the combined opinion of specialists are available. In Great Britain, the overburdened general practitioner has become the sorting machine of his patients, hardly having more time than for sending them to the right hospital department for diagnosis.

The "diagnostician" of the future, working either alone or preferably as a team, will have all the necessary facilities, time, training, and knowledge, at his disposal. The "therapeutician" will not only have had a thorough grounding during his training, but will have learned how to keep up with advancing knowledge in therapy also when he is in practice.

The knowledge of medical therapeutics today has to cover a vast field, which is rapidly and almost daily increasing. It includes physics, biochemistry, pharmacology and other disciplines, although it must be admitted that we have hardly reached the fringe of understanding. Our position may be likened to the Middle Ages of Therapeutics, for while we know that certain substances give rise to certain effects in the body, we have no precise knowledge of how these effects are brought about. We do not know in most instances, what chemical mechanisms are involved when drugs act, and still less do we know how the mind exactly influences such action.

The first step towards developing "therapeuticians" is the re-arrangement of medical teaching. A division of clinical teaching into diagnosis with all its technical adjuncts on the one hand, and into therapeutics in its wider sense on the other. This would include a knowledge of drugs, their action and use, of the various forms of physical treatment and rehabilitation of the sick, and a general understanding of the basic principles of psychotherapy, in view of the fact that at present, at any rate, more than 60% of patients come for medical advice on account of an underlying emotional disturbance. A knowledge of the practical application of psycho-somatic medicine and an understanding of the importance of environmental influences is therefore essential in the armamentarium of the "therapeutician" of the future.

Today, more than 90% of time is given to the teaching of diagnosis and the student attaches proportionate importance to it, with treatment being relegated to a minor place. He only realizes that part of his success as a doctor depends on his knowledge of how to treat his patients when he enters practice. B.L.F.

NEW JOURNAL "CIRCULATION RESEARCH"

The American Heart Association will issue a new bimonthly scientific journal, *Circulation Research*, beginning January 1953. This publication will be devoted exclusively to reports on fundamental studies related to the heart and circulation. In addition, editorials on appropriate subjects and short preliminary reports on "research in progress" will be included.

Circulation Research will be edited by Dr. Carl J. Wiggers, Professor and Director, Department of Physiology, Western Reserve University School of Medicine, Cleveland. Dr. Robert S. Alexander, Associate Professor of Physiology at the same institution, will be Assistant Editor. Grune & Stratton, Inc., New York medical publishers who also publish *Circulation*, the monthly journal of the American Heart Association, will publish the new journal.

Circulation, which is in its third year of publication, will continue as a separate journal under the editorship of Dr. Thomas M. McMillan, Philadelphia. It will concentrate more fully on clinical problems and applied research.

We are confident this new journal will be welcomed by investigators, teachers and physicians. It will be an effective medium to integrate and disseminate new knowledge regarding fundamental problems which must first be solved before applied research can progress.

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MEDICO-LEGAL

THE MEDICAL WITNESS*

ALEXANDER GIBSON, F.R.C.S.(Eng.),
Winnipeg

I AM DEEPLY CONSCIOUS of the honour of being the second speaker on the program of the Manitoba Medico-Legal Association. At the same time I cannot but feel some trepidation at treading so closely on the heels of Chief Justice Williams, whose brilliant and eloquent inaugural lecture we had the privilege of hearing a few weeks ago. From his serene elevation on the Bench, he can look over the arena in which the gladiators contend. It is as one of the dusty combatants that I venture to address you tonight. The medical witness is not one of the stars in the drama of the Courts; he plays one of the supporting rôles; a rôle, however, calling for careful preparation, thoughtful consideration, and temperate judgment.

GENERAL CONSIDERATIONS

It is probable that a doctor rarely enjoys appearing as a witness in court. There are several reasons for this. The experience is a reminder of the *viva voce* tests of which he ran the gauntlet during his years of pupillage, and these were rarely occasions for rejoicing. Not seldom, indeed, they were linked with sombre tidings. Again, every doctor worth his salt is an individualist, accustomed to accept responsibility. He intimates his findings, and prescribes the future conduct of his patient with only occasional argument or contradiction, and, quite unreasonably but humanly enough, he is apt to resent a challenge to his pronouncements. Put this into legal phraseology and it means that every doctor acts as judge and jury in every case that comes under his care. As jury he determines the particular transgression of the laws of health of which his patient has, consciously or unconsciously been guilty, and he prescribes the penalty, the nauseous potion or the surgical ordeal by which the offender may expiate his misdemeanour and rejoin the ranks of the hygienically sinless.

The specialty of Medicine is not an exact science like mathematics or physics. It is based on observed facts and established physiological and pathological laws, but these have to be interpreted in each several instance. Inferences have to be drawn, and every conclusion arrived at is an expression of opinion not an ineluctable consequence. Further, presuming that the inferences drawn and the opinion arrived at are correct, there remains the question of procedure. Which is the right one to follow? Here again opinions are manifold. That is not necessarily a disadvantage, for the same objective may be reached by different paths. Each man, however, is prone to think his own way the best and all others less worthy of acceptance.

Nolens, volens, every doctor is likely to appear in court as a witness at some period of his career. It is desirable that he should have some guiding principles; these are few and simple. (1) He must have a clear conception of what constitutes "evidence". (2) He must observe as many facts as possible, and base his conclusions on these facts. (3) He must offer no opinions which he cannot support by observed facts, or by accepted theory. (4) He must always be ready to admit, "I do not know".

THE MEDICAL REPORT

I think the majority of doctors feel that the most exacting phase of medical testimony is the battery of cross-examination they may have to undergo at the hands of the opposing counsel. With this opinion I cannot agree. The key to the situation is the medical report. If this is accurate in its recording of facts; logical, objective, and moderate in its conclusions, the witness will find his position unassailable. On the other hand, if he mingles the patient's story with his own observations, or in his summing-up permits himself to be influenced by sympathy for or hostility towards the patient, the skilful cross-examiner will speedily unveil the truth, to the discomfiture and, at times, humiliation of the witness.

The experienced medical reporter knows how to draw up such a report. The inexperienced doctor may bungle the task. I would suggest that the young practitioner, cited to appear in court, perhaps for the first time, should set down in writing the essentials of his testimony whether he has been asked for a written report or not. This exercise will clarify his thoughts; he may detect weaknesses or inconsistencies in the position he has taken up, and he may discover that it is expedient to refresh his mind about technical matters regarding which his knowledge may be sketchy, or his recollection cloudy. He will learn to separate what he has observed for himself from the things that have been told to him by others, and he will cast about to anticipate the line of attack that a cross-examiner may take. In all of this his wisest mentor is not another doctor but an experienced and understanding counsel.

The medical report consists of three parts: (1) the patient's story; (2) the examiner's findings; (3) the comment.

THE PATIENT'S STORY

This should be listened to with unwearying patience. Let him tell it himself, however prolix he—or she—may be. It may be necessary to ask questions; if so, such questions should always be direct; leading questions are inadmissible. Much of the history given will be irrelevant but listen

*Address delivered at the second meeting of the Manitoba Medico-Legal Society, February 26, 1952.

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to it all and write most of it down. As you write it down, read your notes aloud so that the patient can hear, and stop every few minutes to say, "Is that correct?" If an accident has occurred, try to get as many details as possible. This may have a bearing on whether concussion of the brain has occurred; it frequently has the effect of shedding light on the credibility of the patient. One's aim should be to form as clear a mental picture of the episode as possible. In a recent case, an elderly lady claimed to have been injured by catching the heel of her shoe on a loose strip of brass attached to the front of the second step from the bottom of a flight of stairs. According to her story she was thrown backwards injuring her spine and was then projected violently forward to the landing at the bottom of the flight of stairs, thus injuring her arms and face. I was unable to form a satisfactory mental picture of the occurrence, and asked her how it happened that she was first thrown backwards and then immediately forwards. She looked at me almost coquettishly and remarked, "Ah, that's the sixty-four dollar question".

Lay special stress upon the complaints the patient still has and find out whether they are unchanged, improving, or getting worse. There are only three things of which a patient complains: (a) pain; (b) deformity, using the term in its widest sense; (c) disability. He cannot now do things which he could do before his accident. Enquire in detail about each of these, and when the whole history has been taken, never omit to ask, "Now is there anything else that troubles you, of which you have not told me?"

THE PHYSICAL EXAMINATION

Complete physical examination of a patient would take hours or days. This is not expected of the examiner. A doctor who is reasonably competent will select the outstanding features of the case and will concentrate on these. Indeed a complete examination would only lead to confusion; it is the duty of the examiner to select what is relevant and to omit the non-essentials. Make the examination of the relevant features as thorough, precise and detailed as possible. If shortening of a limb is present, measure the amount; if there is wasting, note the circumference of the two limbs at corresponding levels. Every doctor should carry a tape-measure. Never omit examination of the central nervous system. A patient seen recently, who complained only of pain in the back, turned out to be an early case of multiple sclerosis. Always carry a safety-pin. Apart from its plebeian virtues as a potential friend in need, it enables you to mark out areas corresponding to sharp and blunt stimuli which may unmask a purely subjective psychic loss of sensation or a hysterical paralysis. Needless to say never hesitate to have radiographic examination. That introduces you to a realm of surprises. Having obtained the history and made the physical examination, go through these carefully and write down a consecutive narrative including the patient's complaints in full. This process enables you to sift the wheat from the chaff. Your physical examination should have been systematic and should need no re-arrangement. Next comes the most important part of the report from the standpoint of your appearance as a witness.

THE COMMENT

The physical findings and the history are collated and where possible correlated so that, if you can, you give an explanation of all the patient's complaints. These should be evaluated, especially in relation to his accident; a prognosis is given as to the time necessary for recovery and the prospect of complete recovery. It is obligatory to record and estimate every permanent disability and deformity, and to bring to notice those that are likely to develop such as osteo-arthritic changes in a damaged hip-joint, even though that change may not have appeared at the time of your examination.

It is thus clear that a medical report is a strictly impartial document. The lawyer who has employed you may not find your report to his taste. I once said to an insurance adjuster, "Well, I don't suppose you liked that report I sent you". He replied, "I'd rather find it out now than in court". Remember, too, that the counsel who has employed you has a right to feel that you have let him down if you omitted to bring forward unfavourable facts which the opposing counsel may force you to admit.

PSYCHOLOGICAL CONSIDERATIONS

There is a realm of enquiry regarding which I am not certain in my own mind. More and more, we doctors are realizing that the patient is an individual with hopes and fears, ambitions, resentments, and a variety of other emotions which can effect profoundly his outlook on life and even his physical well-being. The influence of these emotional factors depends partly on his physical constitution, partly on his mental make-up, and partly on his education and training. It is exceedingly difficult if not impossible to weigh these intangibles in the balance. In the words of Robert Burns,

> "What's done we partly may compute,
> We know not what's resisted."

Fear of the economic future may be well-nigh overmastering to a man whose education has gone no further than Grade IV, whose sole métier is that of a labourer. On the other hand there are individuals who have made the discovery that it is the creaking wheel that gets the grease. Such persons whether they obtain the desired lubrication or not usually do their best to qualify for it. As doctors we find out a good deal about the

economic position and mental outlook of our patients. Should that information be embodied in a report or not? Up to the present I have not done so but have noted it as a help in estimating the validity of the patient's complaints of pain, particularly if, as in a recent case, the physical signs steadily approximate the normal while the subjective tale of suffering shows no diminution.

It may be, too, that I am trespassing on the domain that the psychiatrists have pre-empted as their own, and yet there are some elementary psychological considerations which they are apt to obscure in a welter of polyglot verbiage and which are nevertheless so simple that no medical man dare ignore them if he is to understand his patient. I should be glad to know what is the attitude of the Law to consideration such as these. Medical practitioners, at least, dare not treat their patients as mere physical mechanisms. Many of these unfortunates are keyed up to a state of suspense that puts a brake on their recovery to normal. That is why the opinion is so often expressed that most or all of the patient's complaints will vanish when the lawsuit is settled and not until then. If the outcome of the litigation is favourable, the swiftness of the recovery may be quite impressive.

Relation to Judge and Jury

The medical witness must keep in mind at all times the sole reason for his being in court at all. It is to enlighten the judge and the jury in regard to the facts of the case. His first duty therefore is to make use of the simplest possible language to express his thoughts. We all have a technical vocabulary that we use as a means of communication among ourselves. The judge may lack this equipment and the jury certainly will. The witness must therefore see to it that judge and jury both hear clearly what he has to say; he must enunciate distinctly. Further, he must use terms such as a layman may understand. "The thigh bone" or the "arm bone" is better than "femur" or "humerus"; "wrist" is better than "carpus" and "spine" than "vertebral column". This choice of words is apt to go against the grain, for there is a loss of precision. Such loss, however, is preferable to a state of things where, though precision may have its place in your mind, the judge or jury may be in a condition of hopeless confusion. It is important to recollect that one is not presenting a scientific protocol, but trying to convey the truth to someone else who is desperately anxious to learn the truth. Sometimes the judge may call for amplification of some statement you have made. This interruption should be welcomed, and even to a learned judge, the simplest possible phrases should be used.

There is one other point in your relation to the judge. He is present as the umpire to see fair play. If you feel you are being treated unfairly, the judge will promptly come to your rescue. This is an extremely rare occurrence, but it has happened.

Relation to Your Own Counsel

In this part of your testimony, you float with the stream. Sometimes your report will be the basis of a series of questions, but more often you are invited to tell your own story. For this you may refer to your notes. If anything your counsel thinks important or deserving of special emphasis has been omitted, he may ask one or two supplementary questions. If he is wise he will have asked them at a private consultation beforehand. He will probably lay stress on the conclusions you have reached, and the train of thought by which you reached them. He will then turn you over to his forensic opponent with the succinct remark,—"Your witness".

Relation to Cross-Examining Counsel

Your evidence may carry conviction to such a degree that the cross-examining counsel asks no questions at all. Very often this shows sound judgment. As a rule, however, he may attempt several things.

1. He may try to discredit the value of your testimony as an expert. You may have examined thousands of x-rays but that does not qualitfy you as a specialist on x-ray work. Your opinion may differ from that of the writer of a textbook. Textbooks are often out of date by the time that they are published, but there is an aura of authority surrounding the writer of a manual of instruction. Never hesitate to differ if you can give good reasons for your opinions. If you have anticipated the question, you may even be prepared with another textbook to support your view.

2. He may present a series of opinions differing from your own, generally with the qualification, "Might not this be so?" This is a difficult situation, for if you say, "Yes, it might be", the immediate corollary is, "Then, you're not sure; you may be quite mistaken". Sometimes you will be faced with the general statement that it is only human to make mistakes, and, after all, you are not superhuman. If you get the chance, your one reply is that you have considered the various possibilities, rejected them, and chosen that which you have put forward. To do this successfully means that you must be prepared to give reasons for your belief, and that implies careful preparation.

3. He may seize on one part of your evidence and emphasize it while excluding other parts which modify the whole, and thus tend to misrepresent your real opinion. When he finds himself in this position the medical witness is apt to feel himself aggreived. He has sworn to tell the truth, the whole truth and nothing but the truth, and he feels that he has been manœuvred into giving his endorsement to a half-truth. He cannot always expand his statement; his duty is

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to answer questions. There are two consoling thoughts. (a) His own counsel will probably note the perversion, and, recalling him after the cross-examination, give him the opportunity to make his real opinion clear. (b) The judge is as conscious of the half-truth as the witness is, He is not likely to be deceived. You do not have to struggle to save him from the wiles of a specious pleader.

4. Some cross-examiners habitually bring up the subject of pain, alleging that you have no means of estimating it or even telling whether it actually exists. They will enter into semi-metaphysical speculations on the seat of pain, its mechanism, and other recondite aspects of the problem. Never try to follow them. From your own experience and that of others you have a pretty fair idea of whether a pain is severe, moderate or trifling, and that is about as far as you dare to go.

The cross-examining counsel must never be looked on by the doctor as an opponent with whom he matches wits. You are not permitted to argue with him; you can only answer his questions. Always do this as definitely as you can. Shun the temptation of hypothetical possibilities. You have formed your opinion; stick to it and give reasons for the faith that is in you. Never get flustered or angry. If the cross-examiner attempts to throw you off balance, that is his method of doing his best for his client.

RELATION TO OTHER DOCTORS

When one is giving evidence in regard to a case one has treated personally, the position is relatively simple. The facts of the case are presented along with the considerations that guided the procedure adopted. Where the case under dispute has been cared for by another practitioner, the way is not always so easy.

One generally rings up the doctor in charge and says, "I have been asked to examine a patient of yours Mr. So-and-So; is that all right with you?" The answer is invariably "Yes". The next remark is, "Is there anything you'd care to tell me about him?" One generally gets his point of view. That very often avoids a difference of opinion that, aired in open court, is in the main unfortunate. Hesitate long, very long, before criticizing another doctor's work. Remember that he has, in practically every case, done his very best, and that he can usually support his procedure by authorities which, though they may differ with you, are nevertheless accepted standards. Sometimes in court you will be told, "This morning, Dr. X.Y. said such and such a thing; do you think he is wrong?" In reply to this, one can only accept responsibility for one's own opinions and beg to be excused from commenting on those of others. This demurrer will generally be accepted.

MALPRACTICE SUITS

It is not my intention to discuss this matter at length. I fully expect that it will be the subject of a whole evening's program. There is, however, one aspect of the matter which all should know. No suit for malpractice can proceed unless a medical man will testify for the plaintiff against the doctor who is being sued. It is a sobering thought that the majority of malpractice suits are brought because of criticism by a doctor of the work of one of his colleagues. This should emphasize once again the need for reticence in passing judgment on another practitioner, even in, perhaps especially in the privacy of our own homes. With the establishment of large clinics, and the development of medical practice along the lines of business organizations, the intimate personal touch tends to be submerged. In mediæval days it was a frequent practice in Scotland to carve mottoes above the doorways of houses. I commend to your notice one which still stands in the City of Dunfermline:

> "Sen vord is thrall, and thocht is fre,
> Keip veill thy tonge, I coinsel the."

In the not too distant past there was a subject known as Formal Logic. One of the feats accomplished by its aid was to reduce every statement to the form of a syllogism consisting of a major premise, a minor premise and a conclusion. Transgression of the rules of the syllogism inevitably led to fallacies of which there were many. Formal Logic has, I believe, vanished from the curiculum; syllogisms are out of fashion, but fallacies are as popular as ever. Of these fallacies, perhaps the most widely patronized is that known as *Post hoc ergo propter hoc*. Plaintiffs in actions for damages are peculiarly susceptible to it, and counsel for the plaintiff is now and then not guiltless. To distinguish the real from the seeming, to unfold in proper sequence the tale of physical happenings, and to place them in correct relationship so as to assist the judge in arriving at a verdict as nearly as possible in accord with the actual facts, this is the duty and the privilege of the medical witness.

MEDICAL SOCIETIES

P.E.I. ANNUAL MEETING

The Annual Meeting of the Prince Edward Island Medical Society Canadian Medical Association took place on August 29 and 30 at Charlottetown. Dr. Harold Orr, President and Dr. T. C. Routley, General Secretary represented the C.M.A.

The scientific program included papers by: Dr. Harold Orr, Associate Professor of Dermatology; Dr. Walter MacKenzie, Professor of Surgery; Dr. D. W. Wilson, Associate Professor of Medicine; all of the University of Alberta.

The Business Sessions included the following:

(a) The constitution and by-laws drawn up in conformity with the new medical act were approved and

adopted. It is of interest that this new Medical Act which was passed by the Prince Edward Island Legislature in January 1952, provides for the setting up of a seven member Medical Council, one of whom is appointed by the Minister of Health.

(b) The Association went on record as heartily endorsing the work of the Canadian Medical Association, and adopted unanimously the increase in dues.

(c) The new fee schedule was approved.

Officers of Society for 1952-1953 are as follows:

President, Dr. J. H. Shaw; 1st Vice-President, Dr. John Downing; 2nd Vice-President, Dr. Kent Irwin; Honorary Secretary, Dr. J. H. Maloney; Honorary Treasurer, Dr. R. G. Lea.

County Representatives on Executive Committee:

Dr. Raymond Reid, Prince; Dr. R. F. Seaman, Queens; Dr. G. S. A. Inman, Kings.

Members of Medical Council of P.E.I.:

Dr. W. J. P. MacMillan; Dr. J. P. Lantz; Dr. J. A. McMillan; Dr. Preston McIntyre; Dr. Henry Moyse; Dr. Owen Curtis; and Dr. R. G. Lea, Registrar.

The President's Dinner was held Friday night at the Charlottetown Hotel. The meeting ended with the Annual Medical Ball at Dalvay-by-the-Sea.

ASSOCIATION NOTES

UNIVERSITY NOTES

The following figures show the registration in Canadian Medical Schools for the year 1952-53.

	1st year	*2nd year*	*3rd year*	*4th year*	*5th year*	*Total*
University of British Columbia	60	56	60	—	—	176
Dalhousie University	59	54	50	54	56	273
University of Manitoba	73	61	78	61	68	341
McGill University	108	106	111	117	—	442
Université de Montreal	122	98	98	97	93 (Predoctoral internship)	508
University of Ottawa	—	—	—	—	—	300
Queen's University	64	61	64	58	57	360
University of Saskatchewan	32	30	(In process of expansion)		56 (Sixth year)	62
University of Toronto	157	149	163	170	—	639
1st year premed	128					
2nd year premed	120					
University of Western Ontario	60	58	60	60	—	238

CORRESPONDENCE

ACCREDITATION OF GENERAL PRACTITIONERS

To the Editor:

Dr. Victor Johnston, who is immediate past chairman of the Section of General Practice has very ably indicated the fundamental problems of this important part of our profession in his paper on The Accreditation of General Practitioners (v.p. 452). He has expressed our ideals and objectives very concisely. Likewise, he has indicated how it is hoped to help those practitioners who are interested in good medicine.

The amount of success that may be achieved depends largely on the interest shown by general practitioners across Canada.

The Exploratory committee on accreditation is anxious to obtain individual opinions from as many practitioners as possible. These could be sent as letters to the Editor, or to the Chairman of the Section, Dr. Murray Stalker, Ormstown, Que.

M. R. STALKER

THE EARLY TREATMENT OF SCURVY

To the Editor:

The recently published recommendations of the Committee on Therapeutic Nutrition[1] which were made "with special reference to military situations" bring to mind again the importance which an adequate intake of vitamin C may have under conditions of severe stress.

Scurvy, at one time the scourge of soldiers, sailors and explorers, sometimes swayed the destinies of whole armies and expeditions. We owe one of the earliest accurate descriptions of the disease to Jacques Cartier who, during the winter of 1534, which he spent near the Indian village of Stadacona (Quebec), had to deal with a severe outbreak of scurvy among his men. Out of a total of one hundred and ten "there were not ten whole, so that one could not help the other, a most horrible and pitiful case considering the place we were in . . .".[2]

Cartier not only had a post mortem examination performed on the body of one of his men, who had died of scurvy,—the first autopsy ever to be performed in Canada,—but he also reported the findings with such accuracy that we are in no doubt that the "mal de terre" with which he was grappling was in fact scurvy. He also left to posterity the first report of an effective remedy for the disease.

It had not escaped his keenly observant eye that an Indian, named Dom Agaya, from the near village of Stadacona, who two weeks before had been suffering from the disease, "with his knees swolne as bigge as a child of two years old, all his sinews shrunke together, his teeth spoyled, his gummes rotten and stinking," was walking about apparently fully recovered. On making guarded enquiry from this Indian, so as not to awaken in his mind a suspicion of the weakened state of the French in the fort, he was told of the Indian remedy "Annedda". That a brew made from the bark and leaves of "Annedda" was an effective remedy for scurvy there was no doubt, for, as Cartier reports, "Shortly after they had drunk of it they received benefit, which was found to be a real and evident miracle; for all the sick . . . after having drunk of it two or three times, recovered health and vigour. . . . After this was seen and understood, there was such strife for the said medicine that they would have killed themselves to see who first should have it; so that a tree as big and as tall as any tree I ever saw was used up in less than eight days; which had such effect that if all the doctors of Lorraine and Montpelier had been there, with all the drugs of Alexandria, they could not have done so much in a year as the said tree did in six days, for it profited us so much that all those who would use it recovered health and soundness, thanks to God".[2]

Cartier has not left us a sufficiently accurate description of the tree which the Indians called "Annedda" to make its identification possible. It is noteworthy that to this day authorities have not been able to agree on its identity. Some believe that it was hemlock spruce[3] or white spruce,[4] and others, that it was sassafras.[5] On the basis of the similarity between "Annedda" and O-neh-da, which to the Senecas of today is hemlock spruce, the latter is favoured by Morgan,[4] whereas, according to Biggar the word Ohnehda means white spruce to the present day Mohawks.[4] Botanists are also divided on the question, Kew Gardens favouring sassafras officinale[5] and our local experts white cedar or white spruce.[6]

Leo Pariseau had given us a most erudite study of a historical event, which will be of everlasting interest to Canadians.[4] Would it be possible to re-investigate the question of the identity of the old Indian remedy for scurvy, "Annedda", in the light of our modern knowledge?

Montreal.

B. L. FRANK

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SSOBOLEW AND INSULIN

To the Editor:

I write in reference to a lecture published in *The Canadian Medical Association Journal* (66: 334, 1952) by Dr. A. O. Whipple. He says that Ssobolew made a prophetic statement in 1900 that foretold the discovery of insulin more than 20 years later. He quotes this statement at length, translated from the German. The only reference to Ssobolew accompanying the lecture is: *Centralblatt f. allg. Path. u. path. Anat.*, 11: 202, 1900. This paper is a page and a half in length and contains only one sentence, and that erroneous (see Warren, Pathology of Diabetes Mellitus, 2nd ed. p. 15, 1938), concerning the pathology of the islands of Langerhans with diabetes mellitus. The quotation cited by Dr. Whipple is from a later paper of Ssobolew in *Virchow's Archiv.* (168: 91, 1902). Its significance as a prophecy is lessened by the fact that at this time (1902) the pathology of the islands of Langerhans and their relation to diabetes mellitus had been clearly defined and widely discussed. I offer this correction because the lecture has been recommended for information about the history of the subject.

EUGENE L. OPIE

540 Park Ave., New York.

SPECIAL CORRESPONDENCE

The London Letter

(From our our correspondent)

A NEW HEALTH CENTRE

There has just been opened in Bristol the first health centre to be designed and built for this purpose under the National Health Service. The capital cost of the centre, including site and equipment, has been £19,912. It is designed to serve a housing estate which has between 20,000 and 30,000 residents. The centre contains six suites for general practitioners; each consists of a consulting room, examination room and waiting room. These suites have communicating doors so that a pair of consulting suites can be used for maternity and child welfare clinics out of surgery hours. Eight doctors will use the centre, which has a staff of 12, including five nurses and two secretaries. It is intended that the centre should also act as the headquarters of the local health authority's domiciliary services in the estate.

The aim of such centres was summarized by the Minister of Health when he performed the opening ceremony: "The hope is that it will greatly ease the doctor's burden to be able to use the centre's nurses and secretaries for those many duties which they can undertake to help him—dressings, records, correspondence, messages—and so leave him free to devote his time to the more essential part of his work. It is also hoped that by working in the same building, the general practitioners and the local health authority's clinic doctors, health visitors, midwives and nurses will find it easier to consult each other and that it will be easier for each to call on the services which the others can give to the advantage of their patients".

THE YOUNG DELINQUENT

Last year Dr. Thomas Ferguson, Professor of Public Health in the University of Glasgow, published a fascinating study of the lives of 1,349 young Glasgow workers who had left school in 1947 at the age of fourteen. He has followed this up by a study of juvenile delinquency which has now been published under the title of "The Young Delinquent in His Social Setting". The material for this detailed study consisted of some 2,000 boys, consisting of those in his previous study, with the addition of a group of physically and mentally defective boys. Among the "ordinary" boys the three main factors responsible for delinquency, in their order of importance, were low scholastic ability, inability to hold and retain a satisfactory job, and poor conditions in the home.

The relationship between overcrowding at home and a high rate of delinquency was amply confirmed. Delinquency increased as the type of district deteriorated, and was not immediately reduced by removing slum dwellers to new housing estates. Crime was relatively infrequent among the children of skilled workers. The "broken" home, as defined by Professor Ferguson, was of relatively little importance. Physically healthy boys had a lower delinquency rate than boys in poor physical condition. Indeed, it is suggested that there seems to be an optimum height and weight which is a safeguard against crime. Membership of youth organizations diminished delinquency, and church attendance and virtue went hand in hand. No convincing evidence against the cinema as a factor in increasing delinquency is produced. A rather unexpected finding is that among employed boys crime tended to rise with the level of wages. As was to be expected, the incidence of crime was much higher in the mental defective group than in the normal or physically defective groups.

Professor Ferguson's conclusion is that the home is the controlling factor: "It is undoubtedly to the parent that there belongs most of the success or failure in training the lad away from delinquency".

A TUBERCULOSIS EXPERIMENT

Just about a year ago the Danish Health Department, faced with only partially occupied sanatoria and realizing the lack of such beds in this country, offered to accept British children in their modern children's sanatorium at Vordingborg in Southern Zealand. This generous offer was willingly accepted, and six months ago 25 tuberculous children from this country were sent to Vordingborg. At the end of the six months 14 have returned home restored to health; the remaining 11 are staying for further treatment. At the same time a further batch of 25 children have left for Denmark. This admirable effort is being sponsored by the National Association for the Prevention of Tuberculosis and the Anglo-Danish Society. The latter, through the Anglo-Danish Fund, are meeting all the costs. These are not inconsiderable, as the cost per child for three months' treatment, including travelling expenses, is around £250.

THE NUFFIELD FOUNDATION

The Nuffield Foundation, with its capital fund of £10,000,000 provided by Lord Nuffield, has the fourfold aim of the advancement of health, the advancement of social well-being, the care and comfort of the aged poor, and the advancement of education.

The seventh report of the Foundation, which has just been published, shows how well it is achieving its purpose. Of the £1,596,042 allocated in grants during the last three years, £620,311 has been spent on fundamental research in this country, $498,492 has been set aside to meet the cost of fellowships, scholarships and similar awards, £110,000 has been reserved for research

overseas in the Commonwealth, and £114,000 has been used on research on rheumatism. One of the more interesting of these grants is one of £25,000 to the University of Cambridge to be spent over the next five years on the construction of a new and improved high-speed electronic calculating machine which, making use of the experience gained with the EDSAC (electronic delay storage automatic calculator), will be more reliable and slightly faster and will have more storage capacity. The scope of the Foundation's interests is well illustrated by the allocation of £900 for research on certain peculiarities of negro blood (*e.g.*, sickle-cell trait) which have been found to occur also in some aboriginal tribes in South India—suggesting an Asian origin for negroes.

London, October, 1952. WILLIAM A. R. THOMSON

OBITUARIES

DR. GEORGE W. CRAGG of Cornwall, Ont. since 1938, died on August 15. He was in his 52nd year. A native of Greenbank, Ont., he attended Toronto Normal School. After teaching a short time he then attended the University of Toronto Medical School graduating in 1930. After taking a post-graduate course in internal medicine at London, Eng., he returned to Canada and later joined the Ontario Department of Health, TB division in 1936. Dr. Cragg was the originator and director of mass chest x-ray surveys in Cornwall and the United Counties. He was a member of Knox United Church; past president of the United Counties Medical Society; past president of the Kiwanis Club. He is survived by his widow, three sons and a daughter.

DR. P. J. CARROLL, aged 54, of Claresholm, Alta., died in August. Dr. Carroll spent his early years in Carman, Manitoba, where he received his elementary and high school education graduating with the Governor General's award. He graduated from the Manitoba University Medical College in 1922, and spent two years as intern in the Manitoba general hospital. He had his first private practice at Neville, Sask., where he spent two years before coming to Claresholm. He is survived by his widow; and one son.

DR. WILLIAM ERNEST DEAN, Toronto skin specialist, and a medical practitioner in Ontario for more than 50 years, died on September 9. He was 78 years old. Dr. Dean was interested in cricket and played in international matches against the U.S. He also captained the interprovincial team in the Ontario-Quebec League. He was past president of the Canadian Cricket Association and owned one of the most extensive cricket libraries in Canada. He was a member of the Toronto Cricket Club.

Born in Ridgetown, Dr. Dean was educated at Parkdale Collegiate, Toronto; McGill University and Trinity Medical School in 1898. He began his practice near Tillsonburg. During the First World War he served as a medical officer in the Royal Navy and settled in Toronto on his return from active service. He leaves his widow and a daughter.

DR. FRANCIS P. FLEMING died in the General Hospital on September 5 after a short illness. He was a native son of Saint John. His medical degree was obtained from Johns Hopkins Medical School when he was twenty-one years of age. His internship was spent in the old General Public Hospital in Saint John. Dr. Fleming served as a Captain in the C.A.M.C. in the First World War. His entire medical practice of forty years was in Saint John. He was a member of the Saint John Medical Society, the N.B. Medical Society and the Canadian Medical Society. He is survived by his widow.

DR. CLIFFORD GILMOUR—AN APPRECIATION

Very early in his medical career Clifford Gilmour displayed those rare and sometimes startling gifts as a diagnostician which later made him eminent in the field of internal medicine. These gifts were compounded of an encyclopædic knowledge of Medicine, an uncommonly direct and discerning power of observation, and a leavening fund of common sense. Faced with an unfamiliar problem his blunt "I don't know" was quickly amended because he would not rest until he had found a reasonable solution to the problem.

Those qualities which gained Dr. Gilmour eminence in the practice of Medicine made him a great clinical teacher. Those of us who enjoyed a close association with him as interns or residents are unanimous in regarding that experience as the most rewarding period of our clinical training. His standards were exacting, but he inspired us to hard work by the splendid precept of his own self-imposed discipline. His best teaching was done at the bedside. Here, with consummate skill he would sift the facts, quickly separating out the salient features of a case. He would display his remarkable powers of observation and skill at physical examination. The laboratory was used judiciously to extend or confirm his clinical impressions. In summing up a case he would employ those succinct clinical maxims which his students have never forgotten.

Like so many brilliant people, Clifford Gilmour was intensely modest about himself and disliked praise in any form. Public speaking except in the classroom caused him prolonged agony beforehand, yet when he spoke he did so with precision and authority. His essential shyness was often overlaid by a seeming gruffness of manner which was really an endearing trait to those who knew him best because it held no taint of irascibility. It was, in fact, his armour against sentimentality, which he abhorred in others and feared in himself.

This man of complex character and intense loyalties will never be forgotten by his friends and former associates.

L. G. BELL

DR. FREDERICK VINCENT HAMLIN died on September 1 at St. Michael's Hospital. He had been associated with St. Michael's Hospital, the Monastery of the Good Shepherd and St. Mary's training School. Dr. Hamlin was born at Allandale and was a graduate of the University of Toronto in medicine, class of 1905. He was a member of the Knights of Columbus, the Academy of Medicine and the Ontario Medical Association.

DR. FREDERICK KINCAID of Victoria, B.C., died on August 13, in his 79th year. Death closed a career dedicated to the defeat of tuberculosis. He was one of the group of men who turned on the spotlight of publicity, organized research, and developed new methods of prevention and cure. Dr. Kincaid retired in March, 1945, as medical director of the Victoria unit of the tuberculosis control division of the Provincial Board of Health. Born in London, Eng., he was educated at Marlborough College and London University. In 1901, Dr. Kincaid purchased a private sanatorium in Gloucestershire. He operated it until 1912. He became interested in Canada during the First World War when he was in charge of a T.B. hospital for Canadian troops in England. Following the war, he was employed by the Ministry of Pensions in the U.K. but was unable to continue there for long because of his own failing health and settled in Canada. He was a past president of the Children's Aid Society in Victoria.

DR. JAMES ERNEST LAMB who received his M.D. degree this spring from the University of Manitoba died on September 11 at the Winnipeg General Hospital at the age of thirty. Since graduation he had been taking a course in pathology under Professor D. Nicholson. Born in Regina, Dr. Lamb was educated in the public schools, Normal School, Regina College and University of Saskatchewan (B.Sc.) before taking up the study of medi-

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cine. During the Second World War he served at the C.O.T.C. camp at Brockville and at Camp Shilo for two years as educational officer with the rank of lieutenant. He is survived by his widow, his mother and a brother.

DR. CHARLES ARTHUR HENRY LAWFORD, Edmonton, Alta., died recently at the age of 89. From 1900 to 1944, he was coroner and magistrate at Smoky Lake. He was born in Lyndhurst, Eng., and at an early age, came to Canada and settled at Toronto. He was ordained as a minister of the Methodist Church in 1892. He graduated in medicine from the University of Manitoba in 1900, and the same year moved to Pakan, Alta. He was superintendent of the George McDougall Hospital at Pakan, Alta., until the C.N.R. reached Smoky Lake in 1920 when the hospital was then transported to there and he then set up private practice in that town until he retired in 1944 and moved to Edmonton. He is survived by his widow, and five daughters.

DR. CHARLES AUGUSTUS MARLATT, of Ville St. Laurent, Que., died on August 25 after a lengthy illness. Born in Waterford, Ont. in 1891, and educated at Waterford Collegiate and Regina Normal School, he taught school for two years before entering McGill Faculty of Medicine in 1916. Survivors include his widow, three sons, and a daughter.

DR. THOMAS KENT McALPINE, died in Prince Rupert General Hospital on September 2. He was 68. Born in London, Ont., Dr. McAlpine came to Vancouver in 1887, graduated from the University of Missouri and was later ship's surgeon on a liner between Vancouver and Australia for a number of years. During the First World War, Dr. McAlpine served overseas as a medical officer with the Canadian Army.

DR. ARCHIBALD MOIR, aged 80, died on September 5 in Whitby, Ont. Born in Wellington County, he was educated at the Toronto College of Pharmacy and the University of Toronto graduate of 1902. A brilliant student, he received many medals and scholarships. Following his graduation, he became house surgeon at the Hospital for Sick Children. In 1910, he established a practice in Dunnville, with an office at Peterboro. In recent years, Dr. Moir restricted his practice to surgery. A member of the United Church, his hobbies included boating and fishing. He was a Mason and a member of the IOOF. Surviving are his widow and a daughter.

DR. THOMAS WESLEY NANCEKIVELL, general practitioner for 35 years in Hamilton, Ont., died on September 2. Born in Oxford County, Ontario, he was a graduate of Victoria College, the University of Toronto in 1911 and an honorary life member of the Hamilton Academy of Medicine. Dr. Nancekivell came to this city in 1913 and became an elder of the Mount Hamilton United Church. A member of the Independent Order of Foresters, Dr. Nancekivell was an active supporter of youth groups in the city and helped to found the Mount Hamilton Youth Organization. Surviving are his widow, three sons, Dr. Eric Nancekivell of Hamilton, Dr. Keith Nancekivell, of Toronto, and Hugh Nancekivell, of Hamilton and one daughter.

DR. BALDUR H. OLSON, former medical director of the Great-West Life Assurance Company, died in Deer Lodge Hospital on September 14, aged 64. Born in Winnipeg he obtained his Arts degree from Wesley College in 1911 and his M.D. degree from Manitoba Medical College. He soon obtained a reputation as a chest surgeon which led to appointments on the attending staff of the Winnipeg General Hospital, the King Edward hospital and as consultant in surgery of St. Vital Sanatorium. A post dear to his heart was that of physician to the Old Folks Home at Gimli. For a time he practised with the late Dr. B. J. Brandson. In both world wars he served with the R.C.A.M.C. In 1929 he joined the Great-West Life Company; became assistant medical referee in 1931, associate medical director in 1946 and director in the following year. He retired in January 1951. His widow, two sons, two daughters and seven grandchildren survive him.

DR. R. D. ROACH—AN APPRECIATION

My acquaintance with the late Dr. D. R. Roach goes back to his childhood for we were born and reared in the same village where his father was family physician and friend to the whole countryside. I remember him as a shy little school boy of slender frame and serious face, and even at that early age he had chosen medicine for his future. In our country school he proved to be a good scholar, and after finishing high school, he taught school for a short time before going on to Medical college, where he maintained his record as a first class student.

After qualifying, he settled in practice near me and as confrères we renewed our friendship, and a most stimulating relationship it was for me, although ten years his senior. He was always older than the number of his years and wisdom came to him early. Later, we were together in London and I saw with considerable pride how favourably he compared with other postgraduate students from all over the world. On his return he settled in Moncton and our friendship continued until his death.

As a man, among Dr. Roach's many qualities, two were outstanding. He had an acute appreciation of human values and a rare sense of humour, which combination allowed him to look out on the passing show of life with equanimity. He was never ruffled. He never showed disappointment nor anger, although he experienced both.

As a physician, he had a first class intellect and his work was marked by a patient unhurried thoroughness which is difficult to maintain in these hurried days. All these qualities made him a beloved physician to his patients for he combined in a rare degree the art and science of Medicine. Bob Roach approached as nearly as anyone I have known to the Hippocratic idea of what a physician should be. He stood high in the esteem of all who knew him. He has undoubtedly left his mark on New Brunswick medicine, and our profession is the better for his life and work among us.

Today we find ourselves in a unique situation,* for our president has died in office. This would have been the big occasion for him—the occasion of his presidential address. Yet, though absent—"Hid in death's dateless night"—in this his last testament read by our secretary, he speaks to us his Valedictory. And again his words are the words of wisdom, for he reminds us that the best, the only policy in all our professional dealings is simple, old fashioned honesty, and he calls us back to the ideals of an earlier day, that the trust placed in us by our patients is a sacred thing—not to be profaned.

Here is a man who because of the tragic circumstances of his situation, with the inevitable end in sight, sees life more clearly than ever, and in his last message to us, his confrères in the profession he loved and revered, puts first things first. These which found expression alike in the Hippocratic idea and the Christian ethic must remain the solid rock foundation of our profession. The message is wise and timely.

And now this Division of the Canadian Medical Association says farewell to its retiring president

> "For some we loved, the loveliest and the best
> That from his vintage rolling Time hath prest
> Have drunk their cup a Round or two before
> And one by one crept silently to rest."

It is good to have known Bob Roach. He has left the mark of his influence on our society, and for those of us who were more intimately associated with him through the years there will remain the memory of our friendship with a good man and a fine physician.

CHAS. L. GASS,
Sackville, N.B.

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*This appreciation was given at the Annual Meeting of the New Brunswick Division.

DR. FRANK MOORE SCOTT, aged 44, of Hamilton, Ont., died on September 4. Dr. Scott was noted for his work on behalf of crippled children. He was instrumental in organizing the present cerebral palsy centre in Hamilton. His interest extended throughout the province, and he devoted much time in promoting country-wide surveys of crippled children by service clubs. A native of Exeter, Dr. Scott graduated from University of Toronto in 1933. He left his Stratford, Ont., practice to serve with the armed forces. After the war he served with the Workmen's Compensation Board, coming to Hamilton in 1944. He maintained his interest in sports as medical consultant with the Hamilton Tigers' Football Club. He leaves his widow and four children.

DR. JOHN SMITH STEWART, aged 88, died on September 22 in the Winnipeg General Hospital. Born in Wick, Scotland, he came to Canada in 1884. He practised at Newdale and Oak River until his retirement in 1940. He is survived by his widow, a son, two daughters and two grandchildren.

DR. FRANK C. TREBILCOCK, aged 75, died on September 5. Chief for many years of the ophthalmology department at Toronto Western Hospital, Dr. Trebilcock practised in the city for more than 40 years. He was a member of the senate of the University of Toronto. Born and educated in Bowmanville, he continued his schooling at Port Hope Model School and for a time taught school in Durham county. He was a gold medalist from Trinity Medical School in 1900. Active as a layman in the Methodist Church and the United Church, he was superintendent of the Trinity United Church Sunday School. Later he was a member of Timothy Eaton Memorial Church and served on the board of elders. Surviving is a daughter.

DR. GRAHAM WILSON, aged 62, of Winnipeg, Man., died on August 15. He was a graduate of the Manitoba Medical College in 1916. After graduation he enlisted in the Army Medical Corps, serving for the duration of the First World War. On his return in 1919, Dr. Wilson entered general practice continuing until the time of his death. He had been a member of the Winnipeg Winter Club since its formation. Surviving are his widow and two daughters.

ABSTRACTS *from current literature*

MEDICINE

Coronary Heart Disease in Medical Practitioners.

MORRIS, J. N., HEADY, J. A. AND BARLEY, R. G.: BRIT. M. J., 1: 503, 1952.

This is a report of 6,000 clinical coronary heart disease cases occurring in male medical practitioners, aged 35 to 64 years. The average annual incidence of first attacks of coronary heart disease in these medical practitioners increased with age, to reach 16.6 per 1,000 at 60 to 64 years, and the coronary death rate also rose with age to 7.4 per 1,000 at 60 to 64 years. About 30% of all the men aged 60 to 64 years experiencing first attacks died within the first 6 days of the first attack, another 8% died in the remainder of the first month. In the remainder of the first year 2% died, and an average of 2% died annually in the next 6 years. Men aged 40 to 49 at the date of onset of the first clinical attack had a lower mortality rate during the first few years than those aged 50 to 64 years. The average time lost from work for coronary heart disease during the following 6 years who survived the first attack was about 4 weeks/man/year. The outlook for life of men presenting with angina pectoris was better than for the others. During the 5 years from the date of onset about 11% died. The mode of onset of first presentations of coronary heart disease in the medical practitioners aged 60 to 64 years was 24% as sudden death; 55% as less severe "coronary thrombosis"; and 17% as the relatively benign angina pectoris. The incidence of first attacks of coronary heart disease was twice as high among the full-time general practitioners aged 40 to 64 years as in full-time consultant/specialists, "G.P.-Specialists", and public health officials combined. The incidence of coronary heart disease in non-medical groups is well below that of full-time general practitioners and resembles that of other doctors.

J. A. STEWART DORRANCE

Some New Drugs in the Treatment of Rheumatic Fever.

SMITH, M. J. M.: POST-GRAD. M. J., 28: 179, 1952.

Salicylates have unquestionable usefulness in rheumatic fever, but they have unpleasant side effects on the gastro-intestinal tract and special senses in prolonged therapy. Salicylamide, sodium gentisate, and α-resorcinol are allied substances with greater margins of safety. ACTH and cortisone have palliative but no curative effects on rheumatic fever. Salicylamide is less toxic than aspirin and has a marked analgesic action in frank arthritic conditions and shows promising results in rheumatic fever. A dose of 2 gm. every 4 to 8 hours is recommended. Gentisic acid is a normal metabolite of salicylate in the body, 4 to 8% occurring in the urine. It inhibits hyaluronidase activity in smaller concentrations that salicylate. The enzyme hyaluronidase depolymerizes hyaluronic acid which acts as an interfibrillar cement in the tissues and there may be increased hyaluronidase activity in rheumatic disease. It is as active as salicylate in controlling the manifestations of rheumatic fever and is non-toxic. The recommended dose is 2 to 3 gm. at four hourly intervals. There is no decrease of the plasma alkali reserve as occurs in salicylate therapy. α-Resorcylic acid in doses of 1/10 the usual therapeutic dose of salicylate has the same action in rheumatic fever and similar side effects. However, the second chelate ring added to the salicylate radicle to make the resorcylate radicle in the important factor and causes a reduction in toxicity without affecting the therapeutic activity. H. P. C. (3-hydroxy-2-phenol cinchoninic acid) has ACTH-like properties and causes rapid disappearance of joint pains and fever. There are few toxic effects and the results are as good or better than those of salicylate in rheumatic fever.

J. A. STEWART DORRANCE

The Nonvisualized Gall Bladder.

MARTIN, F. AND MASSIMIANO, A. G.: NEW ENGLAND J. MED., 246: 488, 1952.

A review of 232 cases following cholecystectomy showed that 73 (31.4%) had failed to demonstrate any filling of the gall bladder on their cholecystograms prior to operation. Of these 73 nonvisualized gall bladders 60 (82%) showed calculi at operation. An additional eight showed definite disease (11%), including three acute œdematous gall bladders; three strawberry gall bladders and two markedly thickened gall bladders that had previously been the site of cholecystostomies. Five (7%) showed no evidence of disease.

The authors conclude that nonfunctioning gall bladders show a high incidence of disease (93% in this series) and a high incidence of calculi (82%). It is their opinion that if proper attention is paid to the details of preparation for, and the carrying out of, cholecystograms, non-visualization would be indicative of disease in practically 100% of cases.

To obviate nonvisualization in gall bladders that are not diseased the patient must be carefully instructed in the details of the test prior to undergoing it. If the

gall bladder is not seen the patient should be carefully questioned to see if any necessary steps had been neglected and the test should then be repeated. If possible, gall bladder studies should not be carried out on acutely ill patients, as filling may not occur even when the gall bladder is normal. Patients on fat-free diets probably should ingest some fat about six hours prior to taking the dye to ensure gall bladder emptying.

Since many drugs (morphine and other narcotics, adrenalin, pituitrin, acetylcholine, eserine, histamine, banthine and nitrates) may affect the biliary tract it is important to check the medication which the patient is receiving. It is frequently advisable to check the remainder of the gastro-intestinal tract, and to investigate liver function, before incriminating the gall bladder as the cause of symptoms. NORMAN S. SKINNER

The Rectal Administration of Aureomycin in Children.

SIEGEL, A. C., NICKERSON, C. H. AND COOK, C. D.: NEW ENGLAND J. MED., 246: 447, 1952.

Twenty children, varying in age from four to twelve years, were given aureomycin rectally in single and multiple doses of from 20 to 80 mgm. per kg. per dose. Serum levels of the drug were generally below a satisfactory level and urinary excretion levels likewise were low. Approximately three-quarters of the group complained of rectal tenesmus, and pain was severe enough to cause expulsion of the drug in about 20%. In four children who had received multiple doses proctoscopic examination twenty-three hours after the final dose showed injection of the rectal mucosa with ulceration in one instance.

Because of the failure to attain therapeutic levels in the blood stream, and because of the high incidence of reactions, aureomycin is not considered suitable for rectal administration in children. NORMAN S. SKINNER

Needle Biopsy in Bone Lesions.

RIX, R. R. AND BROOKS, S. M.: NEW ENGLAND J. MED., 246: 373, 1952.

Deep-seated lesions in bones and joints can be easily and successfully biopsied by means of the Turkel needle, the needle devised by Wren and Feder, or the one designed by Valls, Ottolenghi and Schajowicz. A plug of tissue is obtained which is large enough for staining and sectioning by the usual methods. The examination requires only a sedative and narcotics and local anæsthesia in the skin. If any doubt arises as to the location of the needle point prior to biopsy this can be checked by x-ray. Details of technique are given and ten representative cases described. NORMAN S. SKINNER

The Value of Cholangiograms During Biliary-Tract Surgery.

HIGHT, D. AND LINGLEY, J. R.: NEW ENGLAND J. MED., 246: 761, 1952.

While it is recognized that an accurate examination of the common duct should form a part of every operation on the extrahepatic biliary tract, palpation, or even exploration, often fails to disclose small stones or other pathology which may be present. It is now possible, with modern equipment and methods and with close cooperation between anæsthetist, x-ray technician and surgeon, to secure cholangiograms of good quality easily and almost routinely.

While cholangiograms were only done occasionally at first they are now a routine part of all biliary tract surgery at the authors' hospital. Of 115 operative cholangiograms, 96 (83.4%) were considered satisfactory by the radiologist. The cholangiograms were positive in 27 cases (23.4%). A diagnosis of stones was made in 22 cases, of stenosis of the ampulla in four cases and of tumour of the common duct in one case. A congenital anomaly was discovered in an additional case. The operative cholangiograms failed to indicate disease which was present in three cases. In one case tumour of the common duct was discovered subsequently and in two cases postoperative cholangiograms revealed stones in the common duct which had previously not shown up.

While operative cholangiograms may not always be infallible they are reliable enough to be included practically as a routine during operations on the extrahepatic biliary tract. The method of securing the cholangiograms is discussed in detail. NORMAN S. SKINNER

The Differentiation of Parenchymal Liver Disease and Mechanical Biliary Obstruction.

MELLINKOFF, S. M., TUMULTY, P. A. AND HARVEY, A. M.: NEW ENGLAND J. MED., 246: 729, 1952.

The clinical differentiation between jaundice due to parenchymal liver disease and that secondary to extrahepatic biliary obstruction is often difficult. The authors consider that the most helpful laboratory tests are the cephalin-cholesterol flocculation, thymol turbidity and serum alkaline phosphatase. The value of these tests was critically reviewed in a study of 127 cases of jaundice at the Johns Hopkins Hospital. In all cases the etiology had been proved by operation, autopsy or prolonged observation.

The serum alkaline phosphatase will frequently point to the correct cause of jaundice if the following qualifications are kept in mind; absence of bone disease and the fact that an occasional case of parenchymal liver disease (notably cirrhosis or some forms of hepatitis) may have a very high alkaline phosphatase. Despite obstruction of the common bile duct the alkaline phosphatase may be relatively low (under 15 units) when the obstruction is partial or temporary; when co-existent parenchymal liver disease is severe; very early after obstruction; and in a rare case for unknown reasons.

While correct interpretation of the alkaline phosphatase is probably the most important laboratory aid in distinguishing parenchymal liver disease and extrahepatic obstruction, the cephalin-flocculation and thymol-turbidity often give added useful information. Confusion is most apt to arise when both liver damage and bile duct obstruction are present. Serial laboratory tests and close observation of the patient will usually give the correct diagnosis. In the occasional case which remains obscure one must weigh the comparative hazards of continued observation, liver biopsy and exploratory laparotomy.

NORMAN S. SKINNER

Multiple Sclerosis in Rural Norway.

SWANK, R. L., LERSTAD, O., STROM, A. AND BACKER, J.: NEW ENGLAND J. MED., 246: 721, 1952.

Investigation of the distribution of cases of multiple sclerosis in various countries leaves little doubt that the frequency of the disease varies greatly in different geographic locations. Previous investigation had suggested that this geographical variation was related directly to the amount of fat in the diet.

The authors studied the occurrence of multiple sclerosis in Norway and also investigated the diet in different areas through careful estimation of the food intake of representative groups. A high incidence of the disease was found in farming and dairying areas where there was a high intake of animal fats.

This study lends strength to the hypothesis that the ingestion of fats (especially milk and animal fats) may be one of the factors which brings on multiple sclerosis in susceptible persons. NORMAN S. SKINNER

The Routine Guaiac Stool Test.

HOLT, C. L.: NEW ENGLAND J. MED., 246: 864, 1952.

The importance of routine testing of stools for occult blood was evaluated in a series of 1,600 consecutive new patients attending an internist's office. Seventy-seven were found to have a positive reaction on the first specimen. Forty patients had positive tests on subsequent specimens and were studied by x-ray and sigmoidoscopy. The positive test substantiated suspected and proved disease in 27 patients, was misleading in nine where no disease could be found, and led to a positive diagnosis of unsuspected disease in four patients. In two patients the stools were persistently negative despite the presence of an extensive gastric carcinoma in one and polyposis of the sigmoid in the other.

Despite the lack of specificity and the margin of error of the guaiac test for occult blood in the stool it is of definite value as a routine screening test in medical practice.

NORMAN S. SKINNER

THERAPEUTICS

The Maintenance Therapy of Pernicious Anæmia with Vitamin B_{12}.

BREWERTON, D. A. AND ASHER, R. A. J.: LANCET, 2: 265, 1952.

Thirty-six patients with pernicious anæmia, who had previously been treated with liver preparations for at least a year (most of them for over five years), were changed to vitamin B_{12} for a period of twelve months. Doses varied between 50 micrograms every four weeks and 100 micrograms every two weeks. With liver therapy the patients required an average of one injection every 19 days. The average with vitamin B_{12} was one injection every 25 days.

The most striking finding was the patients' enthusiasm for this new treatment although their injections had often been changed before (from one brand of liver to another), and they were not specially biased in favour of a new type of injection.

The authors conclude that vitamin B_{12} for patients with pernicious anæmia, who must receive regular injections for the rest of their lives, is a cheap and relatively painless treatment, free from unpleasant reactions. Subjective changes such as improvement of indigestion, vomiting, fever, lethargy and mental symptoms may occur within a few hours. Appetite returns and there is a feeling of well being before any change in the peripheral blood is observed.

B. L. FRANK

Hormonal Control of Functional Uterine Bleeding.

GREENBLATT, R. B. AND BARFIELD, W. E.: AM. J. OBST. AND GYNEC., 63: 153, 1952.

In the management of functional uterine bleeding, individual steroids such as œstrogens, progesterone, and testosterone, each have their specific field of usefulness. Combinations of œstrogen, progesterone and testosterone, however, have given strikingly good results with control of bleeding in more than 95% of the cases. 1.66 mgm. of œstradiol benzoate or its equivalent, 25 mgm. of testosterone propionate, and 25 mgm. of progesterone were thus found effective in a series of twenty cases. In another 37 cases, similarly good results were obtained with 6 mgm. of œstrone, 50 mgm. of progesterone and 25 mgm. of testosterone.

This combined steroid treatment, administered over a period of five days, usually results in arrest of bleeding within six to forty-eight hours. Withdrawal bleeding, simulating a normal menstrual period, ensues from two to seven days after cessation of therapy. It is thought that this treatment ensures the arrest of bleeding without the need for operation, x-ray or radium therapy.

B. L. FRANK

Use of an Anion-Cation Exchange Resin in Œdematous States Contraindicating Mercurial Diuretics.

BEST, M. M.: *Am. Pract.*, 3: 274, 1952.

Seven patients were treated with an anion-cation exchange resin mixture to determine its effect in œdematous states in which mercurial diuretics were ineffective or contraindicated. Although the careful use of cation exchange resins in renal disease complicated by œdema may be safer and more effective than mercurial diuretics, there are certain hazards associated with their action, *viz.*, acidosis, and excessive loss of sodium and potassium. The development of oliguria, anorexia, mental confusion or muscular weakness are danger signals. Careful clinical and laboratory supervision is essential.

It is thought that the use of anion-cation exchange resin mixtures will assume a prominent place in the management of selected cases of œdema. Sodium depletion can be achieved and the action of organic mercurial diuretics potentiated or restored.

B. L. FRANK

SURGERY

The Mechanism, Reduction Technique, and Results in Fractures of the Os Calcis.

ESSEX-LOPRESTI, P.: BRIT. J. SURG., 39: 395, 1952.

This thorough and stimulating discussion of fractured calcaneus is a Hunterian Lecture and is from the Birmingham Accident Hospital. There are two constant patterns of crush fracture of the calcaneus and each can be reduced by simple methods. The posterior subtaloid joint is not involved in 40% of these fractures and only 4% are so smashed that reduction is impossible. In spite of the possibility of reduction of over half the cases, it is found that over the age of 50 exercise therapy produces better results.

In those under 50 with a displaced fracture reduction by one of the techniques described is urged. In this group return to work with normal mobility and without pain may be expected within six months. When exact reduction cannot be obtained, the method should be abandoned, for exercise alone will give a better result.

BURNS PLEWES

Abdominal Wounds in Jungle Warfare.

BATY, J. A.: BRIT. J. SURG., 39: 388, 1952.

The lessons learned regarding the handling of abdominal wounds in Burma are the same as found on other fronts and deserve repetition. It is useless to operate upon an abdominal case so far forward that postoperative nursing and holding the patient is impossible. Yet the preoperative time factor is very important and it is unwise to delay the patient's transportation to the surgical centre in order to treat mild shock.

An intraperitoneal lesion may underlie an intact peritoneum. A transverse extension added to the vertical incision gives adequate exposure. Fixed viscera may be mobilized. A cæcostomy for a colon repair is just as important as a colostomy for a rectal wound. Multiple bowel lesions may be more quickly and effectively dealt with by resection and lateral anastomosis. Abdominal incisions should not be closed tightly in layers. Pelvic drainage is necessary in all abdominal war wounds. The duodenal tube, intravenous drip postoperatively, and whole blood available are life-saving. Gross fæcal contamination of muscle is particularly liable to be followed by fatal colon toxæmia, which is uninfluenced by sulfonamides.

"A lethal dose of shock is a very real condition."

BURNS PLEWES

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Development of Venous Collateral Circulation and Its Promotion Through Damaging the Chief Vein.

BALAS, A., GOKGO, P. AND RANKY, L.: J. INT. DE CHIR., 12: 128, 1952.

The veins of the leg were studied in dogs and patients. Following injury to the intima by a sclerosing agent, a radio-opaque substance was injected and phlebograms taken. The effects of lumbar sympathectomy and the intravenous injections of novocaine were tried.

Internal injury is followed by immediate spasm of the main vein and its collaterals. The spasm is increased after thrombosis and is marked in the collaterals at that level. The first phase of venous collateral circulation is a delicate unarranged network of veins starting distal to the thrombosis. The second phase is a decrease in the number of collaterals and their arrangement into a wider uninterrupted convoluted pathway. As collateral spasm decreases, the lumen of one collateral trunk increases to form a definitive venous by-pass. Recanalization occurs but is termed a harmful process.

Collateral circulation is promoted by intravenous novocaine, phlebectomy and lumbar ganglionectomy since these decrease venous spasm. BURNS PLEWES

Retroperitoneal Pelvic Leiomyosarcoma.

FRATKIN, L. B., STOFFMAN, I. W. AND LANADA, E.: BRIT. J. SURG., 39: 506, 1952.

A rare tumour in a 76 year old man found as a complication of acute urinary retention is reported from the Vancouver General Hospital. The literature is reviewed. As in other cases, the tumour was not resectable and consisted of interlacing smooth-muscle cells of varying dedifferentiation. Invasion of the bladder with fistulous rupture into the peritoneal cavity preceded death. The leiomyosarcoma did not respond to radiation therapy. BURNS PLEWES

The Association of Chronic Ulcerative Colitis and Carcinoma of the Rectum and Colon.

COMSELL, P. B. AND DUKES, C. E.: BRIT. J. SURG., 39: 485, 1952.

During ten years at St. Mark's Hospital, 11% of the cases of severe ulcerative colitis developed malignancy. Thirteen case histories form the basis for the present discussion.

Carcinoma following ulcerative colitis may not cause a visible tumour and may resemble an inflammatory rather than a neoplastic lesion. When the carcinoma complication appears, it usually grows very rapidly, being nearly always anaplastic and exceptionally invasive. Lymphatic spread is early and extensive. The prognosis is bad. Adenomatous polyps are thought to be definitely precancerous, but are less common than the mucosal tag polyps and inflammatory polyps.

The observations by Cattell that those cases whose history of ulcerative colitis is over nine years are much more likely to develop carcinoma is confirmed. Over half the cases of severe ulcerative colitis with a duration of 10 years or over developed carcinoma in this series. Two of the present series were found unexpectedly in operation specimens. It would be easy to overlook a carcinoma at autopsy on a patient dying of ulcerative colitis and the clinical diagnosis is even more liable to error. It is suggested that the incidence of malignancy has been overlooked in the past. By the time the diagnosis is made in many patients the carcinoma is incurable. BURNS PLEWES

OBSTETRICS AND GYNÆCOLOGY

The Variability of Endocrine Dysfunction in Post-Partum Hypopituitarism.

OELBAUM, M. H.: BRIT. M. J., 2: 110, 1952.

Six cases of hypopituitarism due to post-partum necrosis are described. The biochemical findings have been analyzed, and it has been shown that there may be a marked dissociation in the degree of functional impairment of the thyroid, adrenal cortex and gonads. The diagnosis of hypopituitarism can be made in mild cases even when most of the results of investigatory procedures are normal. The clinical features are of paramount importance in the detection of partial anterior pituitary failure. ROSS MITCHELL

Pelvic Tuberculosis and Pregnancy.

DONALDSON, I. A.: BRIT. M. J., 2: 128, 1952.

Two cases are reported—one of the abortion of an intrauterine pregnancy in a patient with diagnosed pelvic tuberculosis, the other of pelvic tuberculosis discovered six months after a normal confinement. A brief review of the literature dealing with pelvic tuberculosis and pregnancy is given. The possibility of exacerbation of unsuspected pelvic tuberculosis following an apparently normal healthy pregnancy is emphasized.

The frequency with which pregnancy occurs in the presence of pelvic tuberculosis is unknown. Probably many cases have not been reported because the diagnosis had not been established before a pregnancy occurred. Recently a patient was seen in the antenatal clinic who four years previously had had bilateral tubal swellings which were thought to be a tuberculous salpingitis. Should pregnancy occur it may be extrauterine or, intrauterine, abortion may ensue. There is suggestive evidence that unsuspected pelvic tuberculosis may rapidly progress in the presence of advanced pregnancy, possibly resulting in the death of the mother or infant, or both. To what extent modern antibiotics may alter the prognosis remains for future assessment.

ROSS MITCHELL

PÆDIATRICS

Abnormal Bleeding in Childhood.

QUICK, A. J.: POST-GRAD. MED., 12: 89, 1952.

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J. A. STEWART DORRANCE

Canad. M. A. J.
Nov. 1952, vol. 67

Development of Venous Collateral Circulation and Its Promotion Through Damaging the Chief Vein.

BALAS, A., GORGO, P. AND RANKY, L.: J. INT. DE CHIR., 12: 128, 1952.

The veins of the leg were studied in dogs and patients. Following injury to the intima by a sclerosing agent, a radio-opaque substance was injected and phlebograms taken. The effects of lumbar sympathectomy and the intravenous injections of novocaine were tried.

Internal injury is followed by immediate spasm of the main vein and its collaterals. The spasm is increased after thrombosis and is marked in the collaterals at that level. The first phase of venous collateral circulation is a delicate unarranged network of veins starting distal to the thrombosis. The second phase is a decrease in the number of collaterals and their arrangement into a wider uninterrupted convoluted pathway. As collateral spasm decreases, the lumen of one collateral trunk increases to form a definitive venous by-pass. Recanalization occurs but is termed a harmful process.

Collateral circulation is promoted by intravenous novocaine, phlebectomy and lumbar ganglionectomy since these decrease venous spasm. BURNS PLEWES

Retroperitoneal Pelvic Leiomyosarcoma.

FRATKIN, L. B., STOFFMAN, I. W. AND LANADA, E.: BRIT. J. SURG., 39: 506, 1952.

A rare tumour in a 76 year old man found as a complication of acute urinary retention is reported from the Vancouver General Hospital. The literature is reviewed. As in other cases, the tumour was not resectable and consisted of interlacing smooth-muscle cells of varying dedifferentiation. Invasion of the bladder with fistulous rupture into the peritoneal cavity preceded death. The leiomyosarcoma did not respond to radiation therapy. BURNS PLEWES

The Association of Chronic Ulcerative Colitis and Carcinoma of the Rectum and Colon.

COMSELL, P. B. AND DUKES, C. E.: BRIT. J. SURG., 39: 485, 1952.

During ten years at St. Mark's Hospital, 11% of the cases of severe ulcerative colitis developed malignancy. Thirteen case histories form the basis for the present discussion.

Carcinoma following ulcerative colitis may not cause a visible tumour and may resemble an inflammatory rather than a neoplastic lesion. When the carcinoma complication appears, it usually grows very rapidly, being nearly always anaplastic and exceptionally invasive. Lymphatic spread is early and extensive. The prognosis is bad. Adenomatous polyps are thought to be definitely precancerous, but are less common than the mucosal tag polyps and inflammatory polyps.

The observations by Cattell that those cases whose history of ulcerative colitis is over nine years are much more likely to develop carcinoma is confirmed. Over half the cases of severe ulcerative colitis with a duration of 10 years or over developed carcinoma in this series. Two of the present series were found unexpectedly in operation specimens. It would be easy to overlook a carcinoma at autopsy on a patient dying of ulcerative colitis and the clinical diagnosis is even more liable to error. It is suggested that the incidence of malignancy has been overlooked in the past. By the time the diagnosis is made in many patients the carcinoma is incurable. BURNS PLEWES

OBSTETRICS AND GYNÆCOLOGY

The Variability of Endocrine Dysfunction in Post-Partum Hypopituitarism.

OELBAUM, M. H.: BRIT. M. J., 2: 110, 1952.

Six cases of hypopituitarism due to post-partum necrosis are described. The biochemical findings have been analyzed, and it has been shown that there may be a marked dissociation in the degree of functional impairment of the thyroid, adrenal cortex and gonads. The diagnosis of hypopituitarism can be made in mild cases even when most of the results of investigatory procedures are normal. The clinical features are of paramount importance in the detection of partial anterior pituitary failure. ROSS MITCHELL

Pelvic Tuberculosis and Pregnancy.

DONALDSON, I. A.: BRIT. M. J., 2: 128, 1952.

Two cases are reported—one of the abortion of an intrauterine pregnancy in a patient with diagnosed pelvic tuberculosis, the other of pelvic tuberculosis discovered six months after a normal confinement. A brief review of the literature dealing with pelvic tuberculosis and pregnancy is given. The possibility of exacerbation of unsuspected pelvic tuberculosis following an apparently normal healthy pregnancy is emphasized.

The frequency with which pregnancy occurs in the presence of pelvic tuberculosis is unknown. Probably many cases have not been reported because the diagnosis had not been established before a pregnancy occurred. Recently a patient was seen in the antenatal clinic who four years previously had had bilateral tubal swellings which were thought to be a tuberculous salpingitis. Should pregnancy occur it may be extrauterine or, intrauterine, abortion may ensue. There is suggestive evidence that unsuspected pelvic tuberculosis may rapidly progress in the presence of advanced pregnancy, possibly resulting in the death of the mother or infant, or both. To what extent modern antibiotics may alter the prognosis remains for future assessment.

ROSS MITCHELL

PÆDIATRICS

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Canad. M. A. J.
Nov. 1952, vol. 67

DERMATOLOGY

Alopecia Areata. Prevalence in Japanese and Prognosis After Reassurance.

ARNOLD, H. L. JR.: ARCH. DERMAT AND SYPH., 66: 191, 1952.

In a brief but well-charted paper the author, who practises in Honolulu, discusses the fairly common complaint in respect to age, sex and racial incidence, prognosis and treatment. No new light is thrown upon its etiology, but Arnold apparently accepts the long-popular hypothesis that the disorder is a response to stress, usually emotional stress. It is considered statistically significant that while 61% of the patients in Arnold's series of 135 cases were Japanese, only 35% of the patients in his practice are of that race. There was a female sex-preponderance. The age distribution did not differ significantly from that of the population as a whole, and the age of the patients did not seem to have any bearing on the immediate prognosis. Neither did it appear that the initial duration of symptoms influenced the total duration of the disease. Arguing from the above-mentioned hypothesis concerning its etiology it appeared to the author that the disorder would best be handled by belittling it, giving no treatment but announcing an optimistic prognosis. In his experience this approach to the treatment problem was justified—the best treatment was no treatment—and the great majority of his patients had regrowth of hair within three months. Nothing is said about recurrence, which according to the experience of most is frequent, and most apt to be extensive when the first attack is pre-puberal. D. E. H. CLEVELAND

Nomenclature, Classification and Pathogenesis of "Eczema" in Infancy.

HILL, L. W.: ARCH. DERMAT. AND SYPH., 66: 212, 1952.

This paper, by an author who is widely known among pædiatricians and dermatologists, who is the Chief of the Allergy Clinic at the Boston Children's Medical Centre and Clinical Associate in Pædiatrics at Harvard Medical School, deserves reading and careful study by all those interested in the medical problems of childhood.

The term "eczema" is used in its wide sense, including atopic, contact, seborrhœic and infectious eczematoid dermatitis, eczematoid fungus infections, nummular eczema and unclassified eczematoid eruptions. The author confines his discussion to atopic dermatitis or atopic eczema. About 7% of the population are distinguished by their immunological response to natural exposure by ingestion or inhalation of foreign protein. When this results in dermatitis it is called atopic dermatitis. They show multiple positive skin-tests of the immediate urticarial type, and their circulating antibodies often can be transferred to the skin of a normal person. Only in infancy do a small proportion of these cases show exudation. The morphology in children, as in adults, is of the chronic lichenified type to which popular medical usage attaches the outworn term "neurodermatitis".

The diagnostic skin-test to detect offending proteins is an urticarial wheal and not a dermatitis. Some additional immunological situation in the skin, which Hill calls the "X-factor" is apparently necessary before dermatitis can be elicited by ingesta or inhalants. He regards most positive skin-tests to food as normal to an atopic person and meaning nothing more than that he is an allergic person. The egg-white reaction seen in most atopic infants is of particular interest, and Hill believes with Bret Ratner that the sensitization was probably intra-uterine. It is of value in diagnosis, because infants with eczematoid eruptions which are not atopic dermatitis do not give it.

While Leiner's disease, or erythrodermia desquamativa, is rare in America, what Hill believes to be a variant, which he calls "atopic erythrodermia" is much commoner. It has much resemblance to Leiner's disease, which is believed to be a high degree of seborrhœic dermatitis, having similar profuse desquamation and enlarged lymph nodes. But unlike Leiner's disease atopic erythrodermia is seen in strongly allergic babies, who have a leucocytosis, the cell increase accounted for mostly by eosinophils. They are prone to develop infections of the respiratory tract. In the author's picturesque phraseology "Allergy possesses them; they are saturated with it. They are the most allergic of all persons". They also contrast strongly with subjects of Leiner's disease, who do not itch. Most of them gradually recover some time during their second year, but most cases later develop asthma or hay-fever. Removal of the foods or environmental allergens to which they show positive skin tests does not cure them. The best treatment is to maintain nutrition by proper feeding, good local treatment of the skin, and try to keep them free from infection. The disease is regarded as a combination of seborrhœic dermatitis (which often precedes it), atopic dermatitia and infection. Hormonal therapy is contraindicated. Low-fat high-protein diet if of value, but milk-free foods and predigested protein preparations may do more harm than good by producing diarrhœa. The disease is not due to milk-sensitivity, but it is best to give no wheat or egg and to use a simple diet containing relatively few foods. There is no quick cure, but skilful local treatment does more good for infantile atopic dermatitis than anything else.

In ordinary atopic dermatitis milk may sometimes be of importance, and milk-free foods may sometimes be a necessity. It is to be remembered that the casein of goat's milk and cow's milk are identical but while the two lactalbumins differ there are often crossed reactions. In strictly seasonal episodes of short duration cortisone can sometimes be valuable. D. E. H. CLEVELAND

INDUSTRIAL MEDICINE

Problem of Asthma in Industry.

SPAIN, W. C. AND FONTANA, V. J.: ARCH. INDUST. HYG. AND OCCUP. MED., 5: 478, 1952.

The authors of this article consider bronchial asthma as an expression of the protest made by the body against harmful environmental factors whether these are inhaled, ingested or infective in origin. The occupational type differs from other types in the nature of the eliciting agents and in the severity and tenacity of symptoms due to intimate contact in confined areas of shop or factory. As a health problem in industry the actual importance of asthma has not yet been fully realized, but it is apparent that the ever-increasing industrial pursuits of modern times are adding to its occurrence.

Classified according to etiological factors the main groups of industrial bronchial asthma are as follows: (a) symptoms due to inhaled substances (most common type), *e.g.*, dusts, fumes; (b) symptoms due to foods ingested (rare in industry), *e.g.*, found in tea or coffee tasters; (c) symptoms due to substances absorbed through the unbroken skin (uncommon), *e.g.*, found in workers in beauty shops; (d) symptoms due to infection, *e.g.*, "asthmatic bronchitis". Asthma rarely develops from the worker's initial contact with an allergen; more commonly the incubation period is months or years. Coryza often precedes the asthma and in certain cases (dye workers) dermatitis may precede the respiratory symptoms.

Details are given regarding occupations that can initiate the allergic conditions of the respiratory tract as for example, furriers, hat makers, rag sorters, barbers, workers in beauty shops, bakers, millers, bedding and furniture manufacturers, farmers and handlers of laboratory animals.

The Society for the Study of Asthma and Allied Conditions, has classified the sufferers from occupational asthma as follows: Category A, in which "the allergic person becomes sensitive to an allergen which he encounters only in the pursuit of his occupation, thus making it impossible for him to pursue his occupation"; Category B, in which "the allergic person becomes sensitive to an allergen encountered in large quantities in his occupation but encountered in less quantities outside"; Category C, in which "the allergic person becomes sensitive to an allergen largely encountered outside his occupation, but present also at work"; and Category D, in which "an allergic person becomes sensitive to substances never encountered in his occupations". The question of compensation is mentioned in relation to each.

The authors draw attention to the significance of secondary factors—for example, nervous factors and respiratory infections. The methods of diagnosis and treatment, specific and non-specific, are similar to those of other types of asthma; immunizing procedures are less often successful, the control of symptoms depending usually upon the patient's being removed from his occupational environment. MARGARET H. WILTON

Environmental Health: A Critique.

HOLLIS, M. D.: PUB. HEALTH REP., 66: 400, 1951.

The pressing need among environmental health leaders, to bring research and program planning in their field up to a level commensurate with the needs of the people in our changing contemporary environment, is indicated by this article. In it the author evaluates environmental health at the present time and suggests plans for meeting future problems.

Before considering any specific phases of this problem, the author draws attention to the influence which war and depression have exerted on the development of environmental health programs in the past, and also to the drawback to present development due to scarcity of trained personnel. He then indicates the progress which has been made in many phases of this work and the present status of their public health administration. These phases include basic sanitation, water pollution, control of insect-borne diseases, toxicity to man of insecticides and rodenticides, industrial hygiene, air pollution and the impact of the atomic age on health. In the industrial hygiene field gratifying progress has been made; technical knowledge has kept pace fairly well with industrial developments. Moreover, the industrial hygiene concept has broadened to embrace the workers' total health needs.

Of particular importance at the present time is the responsibility for health protection against radiological hazards. Reference is made to the program in this connection now being prepared by the Public Health Service.

Responsibilities to national security must also be considered. Civilian defense planning calls for complete and faithful co-operation from health agencies at all government levels. Important environmental factors involved are control of water pollution, control of nutrition and avoidance of food poisoning, correction of substandard housing conditions and control of atmospheric conditions.

The author makes special mention of three factors which will, in his opinion, influence the development of environmental health services. These are: (1) the boldness with which we redefine and re-establish functions at the Federal, State and local levels; (2) the competence we display in formulating our respective environmental health programs to meet the economic and social needs of the nation; (3) the question of professional leadership.

MARGARET H. WILTON

FORTHCOMING MEETINGS

CANADA

ONTARIO PUBLIC HEALTH ASSOCIATION, 3rd Annual Meeting, Royal York Hotel, Toronto, November 3-4, 1952.

UNITED STATES

CONGRESS OF NEUROLOGICAL SURGEONS, 2nd Annual Meeting, Palmer House, Chicago, Ill. (Dr. Bland W. Cannon, Secretary, Congress of Neurological Surgeons, 1092 Madison Ave., Memphis, Tenn.) November 6-8, 1952.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, 59th Annual Meeting, Statler Hotel, Washington, D.C. (Dr. Royd R. Sayers, Secretary, The Association of Military Surgeons of the U.S., Armed Forces Institute of Pathology, Washington 25, D.C.) November 17-19, 1952.

AMERICAN MEDICAL ASSOCIATION, Clinical Session, Denver, Colo. (Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Ill.) December 2-5, 1952.

THE RADIOLOGICAL SOCIETY OF NORTH AMERICA, 38th Annual Meeting, Hotel Netherland-Plaza, Cincinnati, Ohio (Dr. Donald S. Childs, Secretary-Treasurer, 713 E. Genesee St., Syracuse, 2, N.Y.) December 7-12, 1952.

AMERICAN ORTHOPSYCHIATRIC ASSOCIATION, 30th Annual Meeting, Hotel Statler, Cleveland, Ohio February 23-25, 1953.

AMERICAN HEART ASSOCIATION, 29th Annual Meeting and 26th Scientific Session, Hotel Chelsea, Atlantic City, N.J. (Dr. André Courvand, Chairman of Program Committee, c/o American Heart Association, 44 East 23rd Street, New York 10, N.Y.) April 8-12, 1953.

OTHER COUNTRIES

INTER-AMERICAN CONGRESS OF RADIOLOGY, 4th Congress, Mexico City, Mexico (Dr. Guillermo Santin, Secretary, Londres 13, Mexico 6, D.F.) November 2-8, 1952.

INTERNATIONAL CONGRESS ON HYDATID DISEASE, Santiago, Chile (Organizing Committee, P.O. Box 9183, Santiago, Chile) November 21-24, 1952.

INTERNATIONAL STUDY CONFERENCE ON CHILD WELFARE, Bombay, India (All India Save the Children Committee, 5 Carmichael Road, Bombay, India) December 5-12, 1952.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, 14th Congress, Montevideo, Uruguay (Dèreccion General Del Service de Sanidad Militar. 8 de Octubre y Mariano Moreno, Montevideo, Uruguay) March 1-7, 1953.

INTERNATIONAL HOSPITAL CONGRESS, London, England. (Capt. J. E. Stone, Hon. Secretary, 10 Old Jewry, London, E. C. 2, England) May 25-30, 1953.

INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Amsterdam, Holland (Dr. W. H. Stuben, J. J. Viottastraat 1, Amsterdam) June 8-15, 1953.

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NEWS ITEMS

ALBERTA

A very excellent and well attended annual meeting of the College of Physicians and Surgeons was held in the City of Lethbridge, September 24-27. The smoothness with which the program was carried through bears evidence of efficient work by the various committees concerned. Our congratulations and thanks are extended to the members of the profession in and about Lethbridge for the real Southern hospitality shown. The Lethbridge Civic Centre is an ideal place for holding meetings of this type as was so readily observed at our gathering. We in perhaps larger cities can take a lesson from the doctors and their arrangements in running future meetings.

Dr. Walter MacKenzie, Professor of Surgery at the University of Alberta is one of several Canadians presenting papers at the Tri-state meeting in Cleveland in November.

Dr. J. A. McNally of Lethbridge had a visualization demonstration of his artful thoughts placed on display at the Art Exhibit and Hobby show at the Lethbridge meeting and named it "The Thing". A fine display of paintings, photography and restful-hour work was reviewed by many in attendance. Among the beautiful display were a goodly number by Dr. E. V. Spackman. The South of the Province would appear to have more medical men lengthening their lives through hobbies than the North—perhaps another lesson we may learn.

Dr. J. A. M. Cameron, F.R.C.S.(Edin.), is taking a three months' course in surgery in London, England.

Dr. R. W. Robertson is specializing in ophthalmology in Edmonton.

Dr. Robertson is a graduate of the University of Alberta and took his postgraduate training at the University hospital and in Toronto.

Dr. Leo L. Geroux is associated with Dr. Frederick Conroy of Edmonton and is confining his work to Urology. Dr. Geroux is an Alberta graduate and took his training in Edmonton and Hotel Dieu in Montreal.

Dr. E. G. Kidd has commenced practice in Internal Medicine in Edmonton. Dr. Kidd graduated from the University of Alberta and took his postgraduate training in Edmonton followed by research work at the University of Minnesota and Cornell University Post-Graduate School for four years. He is associated with Dr. Donald Wilson. Dr. Kidd was with the R.C.A.M.C for a period.

Dr. R. G. Townsend, Calgary, Alberta, has returned to his practice after eight weeks abroad. While away Dr. Townsend attended the Convention of the Orthopædic Associations of the English speaking world and visited Orthopædic Clinics in Great Britain.

W. CARLETON WHITESIDE

BRITISH COLUMBIA

The Annual Meeting of the Canadian Medical Association, B.C. Division, was held in Victoria on September 16 to 18. The Assembly met the first day, and received reports, while the General Session of all members was held on the evening of September 17.

Dr. J. A. Ganshorn was declared President-elect for next year. He has been very active in medical affairs for the past few years, and was unanimously elected, no other nominations being received. Dr. R. G. Large, of Prince Rupert was elected Vice-President and Dr. F. A. Turnbull remains Chairman of General Assembly.

This was the first meeting of the Division since its re-organization, and owing to the careful preparation work done by the Executive and its various Committees, there were no hitches, and everything functioned most smoothly. The reports of the various Committees showed a very satisfactory state of affairs, financially and otherwise, and represented a tremendous amount of hard work.

The membership, which is on a purely voluntary basis, is growing rapidly, and has almost reached 1,000. Over 200 men have paid "Founder's Fees", which are held in a special fund for emergencies.

The main achievements of the new Division are in two fields—first, economic—secondly, public relations. Complete success has not been reached in either, nor could one expect it after a few months' work—but an amazing amount of real progress has been made.

As regards economics, the Division has issued a new Schedule of Fees. Our contract with the Workmen's Compensation Board (our conferences with this body were marked by a high degree of cordiality—the Board being most co-operative) has been reviewed, and definitely better terms have been obtained. Our contract with the Provincial Government in the matter of Social Assistance Medical Services has been put on a better basis, though finality has not been reached here.

As regards public relations, a program has been worked out, embodying some most promising moves. In the first place, relations with the press bid fair to be considerably bettered. As a starter the press was admitted freely to all our discussions. The representatives of the press responded readily and their papers gave full, accurate and objective reports of the subjects discussed. There were no mistakes made, and the pressmen showed again what some of us have always felt, that they can be given our complete confidence with perfect safety. A program of radio broadcasting is being prepared along this line too of better public relations, and a typical broadcast was given to the audience. It was excellent, and should attract public attention. The radio experts and the Committee of the Division worked it out together.

Altogether, it is felt that this meeting was a milestone in our relations with the Government, the public, and the medical profession itself.

The Report brought down some time ago by the special committee of the Greater Vancouver Community Chest, on the question of narcotics, addiction thereto, and the measures for treatment and prevention of this, has given rise to a tremendous amount of public discussion. It is a masterly piece of work, and deals with the problem most frankly and fully. One of its suggestions has aroused a special amount of controversy. This is the treatment of addicts in a special clinic where they would be given drugs at cost, while other steps were being taken for their cure and rehabilitation. The first reaction to this suggestion is rather one of shock, but the Committee is amply prepared with most carefully documented arguments in its favour, one of the main arguments being that it does away with the bootlegger of drugs, since he cannot meet the low price. This bootlegger, purveyor or whatever you may call him, is the chief source of new cases of addiction. A great many people resent this advice and feel it to be shocking, but their objections seem to be chiefly based on sentiment and ignorance of the true facts; as other centres report that this method has been most successful.

A new Citizens' Committee, embracing all walks of life, is studying the question further.

The polio epidemic in B.C. is gradually subsiding—but it has been a severe one. Approximately 200 cases have been treated in Vancouver alone, and there have been many in other centres. The sufferers from the disease, however, have more reason for hope than ever before—with the various rehabilitation programs now in effect—especially at the Rehabilitation Centre on 28th Avenue West in Vancouver.

A welcome guest at the C.M.A., B.C. Division meeting, was Dr. T. C. Routley, General Secretary of the C.M.A. He was able, on two or three occasions, to supply much needed information, and some very wise and welcome advice.

The Annual meeting of the B.C. College of Physicians and Surgeons was held on September 9 in Victoria. The Report of the Registration Committee was of considerable interest, as it gave the number of applications made during the past year, and the number accepted for registration. B.C. continues to attract applications from Europe—and many of these have been found acceptable—but most of them cannot reach the required standards. A new and detailed "Requirements for registration in British Columbia" has been prepared—and is being widely circulated.

J. H. MACDERMOT

MANITOBA

Dr. Murrough C. O'Brien (Man. '97) and Mrs. O'Brien of Qu'Appelle, Sask., recently celebrated their golden anniversary. Dr. O'Brien practised at Dominion City, Rossburn and Birtle and was the prime mover in the formation of the North Western Medical Society of Manitoba, a model society of its kind.

Dr. Wallace A. McAlpine, Man. '44, was a recent visitor at the Winnipeg General Hospital. He did post-graduate work in England where he gained the F.R.C.S. both in Edinburgh and England, and is now doing chest and heart surgery in Toledo, Ohio.

Dr. Fischel J. Coodin has opened an office at 601 Boyd Building, Winnipeg, for the practice of pædiatrics.

Now practising at Neepawa is Dr. Lawrence S. McMorris, Man. '46, who from December 1948 to December 1950 was private physician to British Commonwealth Diplomats in Moscow.

The village of Sandy Lake which built a 4-bed nursing unit now has a doctor of its own in Dr. Markus Scherz, Brussels '41.

Reginal Eugen Renaud, L.R.C.P., M.R.C.S. '41, is now engaged in practice at Portage la Prairie.

Dr. John Ridge, until lately in charge of Clearwater Lake Sanatorium is now Lecturer in Pathology, Faculty of Medicine, University of Manitoba.

Dr. Wojciech Janusz Poznanski, B.Sc. Warsaw '39, M.D. Brussels '49, now an intern in Misericordia hospital will shortly take charge of Fisher Branch Outpost Hospital.

A graduate of Peiping Union Medical College, Dr. Chieng-laing Hsu, L.M.C.C., 1952, is on the staff of Brandon Sanatorium. On the staff of Manitoba Sanatorium, Ninette, is Dr. Wasal Zajcew, M.D., Berlin '43, L.M.C.C., 1952.

Dr. Gerard R. F. Landry, B.A., Man. '47, M.D. Laval '52, is at Pine Falls, Man.

Assisting Dr. H. V. Walden at Vita Memorial Hospital is Dr. Peter Suderman, Gottingen '50, L.M.C.C., 1952.

During the annual meeting of the Manitoba Division of the Canadian Medical Association a public evening meeting in Grace Church will be addressed by Dr. A. D. Kelly, Associate Secretary of the Association on the topic "The Price of Health".

Dr. Elizabeth Kolesnichenko, who graduated from the University of Kharhov, Russia in 1941, and has served on the staff of Manitoba Sanatorium, has been registered with the College of Physicians and Surgeons of Manitoba. She is presently serving as an intern in St. Boniface Hospital.

Dr. Harry Medovy, associate professor of pædiatrics at the University of Manitoba has been recommended by the public health committee of the city council as director of child care for Winnipeg. After council's approval Dr. Medovy will replace the late Dr. O. J. Day.

Dr. Margaret McGuire, R.R.L. has assumed her new duties as medical librarian of the Winnipeg General Hospital.

Dr. Reuben M. Cherniak, Man. '48, is now Staff physician on a part-time basis at the Central Tuberculosis Clinic. He won the Prowse prize while resident in the Winnipeg General Hospital and in the season of 1951-52 he did pulmonary research work at the Presbyterian Hospital, New York City.

The first meeting of the season of the Winnipeg Medical Society, held September 19, was addressed by Sir Stanford Cade of London, England on The Use and Abuse of Radium as a therapeutic Procedure, and by Prof. Richard M. Windeyer, head of the Department of Radio Therapy, Middlesex Hospital, London, Eng., on Leukæmias.

Dr. George Ryan and Dr. Otto Schmidt of Winnipeg were received as Fellows of the American College of Surgeons at the meetings held in New York City.

ROSS MITCHELL

NEW BRUNSWICK

Dr. G. B. Peat of Saint John has been honoured by elevation to the rank of Knight of Grace of the Venerable Order of the Hospital of St. John of Jerusalem. Dr. R. J. Brown of Moncton has been promoted to the status of Serving Brothers in this same organization.

Dr. Frank C. Hazen has assumed his duties as District Medical Officer and Chairman of the Saint John Board of Health.

Dr. E. W. Lunney, Chief of the Department of Anæsthesia of the Saint John General Hospital, attended the meeting of the International Association of Anæsthetists at Virginia Beach.

The New Brunswick Medical Society, in the annual meeting at St. Andrews, elected the following officers: President—Dr. George F. Skinner, Saint John; First Vice-president—Dr. E. F. Woolverton, Woodstock; Second Vice-president—Dr. A. H. Sormany, Edmundston; Treasurer—Dr. George M. White, Saint John; Secretary—Dr. F. L. Whitehead, East Riverside; Executive Committee Members—Dr. Ernest Dumont, Campbellton; Dr. S. R. Webber, Calais, Maine; Dr. W. Ross Wright, Fredericton; Dr. C. W. DePow, Woodstock; Dr. C. L. Goss, Sackville; Dr. F. C. Jennings, Saint John; Dr. A. Robichaud, Tracadie; Dr. G. A. Gauvin, St. Basile; Dr. A. L. Winsor, Norton; Dr. P. Losier, Chatham. Due to the death of Dr. R. D. Roach of Moncton, Dr. L. W. Brownrigg will remain on the executive as past president.

The N.B. Medical Annual golf tournament was won by Dr. G. E. Maddison of Rothesay and the ladies' golf competition was won by Mrs. F. L. Whitehead of East Riverside.

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The Scientific Program follows: (1) "Treatment of Cancer by Surgery", by Sir Stanford Cade. (2) Symposium—"Cancer of Skin and Soft Tissues", by Prof. Brian Windeyer, Sir Stanford Cade and Dr. Harold Orr. (3) Round Table E.N.T. discussion—by Dr. A. W. Ross, Dr. R. T. Hayes and Dr. Ross Wright. (4) "Pancreatitis", by Dr. Walter C. MacKenzie. (5) "Left Inframammary Pain", by Dr. Eustace Morin. (6) "Acute Intestinal Obstructions", Dr. Walter MacKenzie. (7) "Oral Administrations of Penicillin", by Dr. Murray Young. (8) "Systemic Lupus Erythematosis", by Dr. Harold Orr. (9) Round Table Obstetrics—by Dr. Paul Melanson, Dr. K. W. MacKenzie and Dr. George M. White. (10) "Treatment of Macrocytic Anæmia", by Dr. Donald R. Wilson. (11) "Metabolic Disorders of Bone", by Dr. D. R. Wilson.

Luncheon and Dinner Speakers were: Prof. Windeyer, Dr. Harold Orr, President of C.M.A. and Dr. T. C. Routley.

A. S. KIRKLAND

ONTARIO

The Donald C. Balfour lecture in surgery was given by Clifford Morson, O.B.E., F.R.C.S., consulting urologist, National Health Service and chairman of the academic board at the Institute of Urology, University of London. His subject was "Ill Health and History". He said that the charges of germ warfare in Korea was a case of history repeating itself. During the Peloponnesian war in Greece (431 to 404 B.C.) the Athenians had suffered a great plague then there had been wild accusations of poisoning by enemies.

He outlined the diseases suffered by Philip II of Spain who tried to conquer Britain with his Armada. To this day Frenchmen believe that Napoleon would have won the battle of Waterloo had he not been suffering from cancer of the stomach and urinary calculi.

Speaking of the present day he said: "When we consider that the destinies of nations are commonly held in the hands of gentlemen whose blood pressures are too high, it is not too much to say that arteriosclerosis is one of the greatest tragedies that afflict the human race."

Major Desmond Burke won the Governor General's Gold Medal match at the 84th annual Dominion of Canada Rifle Association shoot. Dr. Burke posted a record score of 174 out of a possible 175 from 300, 600 and 900 yard ranges in a drizzling rain to beat out 149 other marksmen. Recognized by many as the best shot that Canada has ever had, Dr. Burke is the only rifleman ever to win both the King's prize at Bisley and the Governor General's Gold Medal. In addition he has won the King's Medal eight times.

Dr. Burke is director of the department of radiology at Sunnybrook Hospital. The department has a staff of three full time assistant radiologists, three consultants and three postgraduate students. He has organized a good museum of x-ray films of interesting diseases. Some of these records even include the final report of the pathologist. To ensure variety in his medical contacts Dr. Burke does the radiology at the hospital in Oakville.

Sir Stanford Cade lectured at the Academy of Medicine, Toronto, on Soft Tissue Tumours. He described 153 cases he had attended at Westminster Hospital. He said that the nomenclature of these tumours was confusing. The terms neurogenic sarcoma and myxosarcoma should be discarded, and these, with most of the group, be classified as fibrosarcomas. These tumours can occur at any age, the peak is in middle life. Seventy-five per cent occur in the limb. They are encapsulated. In the past they have often been inadequately enucleated. Treatment is wide local incision with pre- and post-operative radiation, preferably with radium.

An address dealing with 153 cases watched over and studied during a period of thirty years described by the interested observer is so much more impressive than a series of several thousand studied by the punch card system, with most of the work done by assistants. The audience were satisfied that they had listened to an authority.

Sir Stanford is surgeon, Westminster Hospital; consulting surgeon, Mount Vernon Hospital and Radium Institute; lecturer in surgery, Westminster Medical School and formerly examiner in surgery, University of London, late Hunterian Professor, Arris and Gale lecturer and member of the Court of Examiners, Royal College of Surgeons, England; Honorary Member American Radium Society; Consultant in Surgery, Royal Air Force.

Professor B. W. Windeyer, director of Myerstein Institute of Radiotherapy, Middlesex Hospital; professor of radiology, University of London, and surgeon in charge, Radiotherapy Centre Mount Vernon Hospital also spoke to the Academy. His subject was "The Leukæmias". He described 359 cases. They have had very little success with either hormones or with folic acid antagonists, radiation gives the best results in these cases.

The Faculty of Medicine University of Toronto has announced the following appointments and promotions: professor in diagnostic radiology and head of the department of radiology, Dr. A. C. Singleton; associate professors, anæsthesia, head of the department of anæsthesia, Dr. S. M. Campbell; medicine, Dr. W. R. Campbell, Dr. R. C. Dickson, Dr. H. E. Rykert; pædiatrics, Dr. Gladys Boyd; pathological chemistry, Dr. A. G. Gornall; surgery, Dr. E. H. Botterell; anatomy, Dr. J. W. A. Duckworth.

Assistant professors are: medicine Dr. A. J. Kerwin; neuropathology, Dr. Mary Tom; pathology, Dr. W. L. Donohue; pathology, Dr. G. R. McLean.

Associates are: anæsthesia, Dr. H. R. Hargrave; medicine, Dr. C. C. Gray, Dr. W. E. Hall, Dr. D. B. Moran, Dr. J. F. Paterson; Ophthalmology, Dr. T. H. Hodgson; Pædiatrics, Dr. M. A. Cox, Dr. H. E. Edwards, Dr. W. A. Hawke, Dr. J. D. Keith, Dr. G. A. McNaughton; pathological chemistry, Dr. W. Paul; psychiatry, Dr. J. W. L. Doust; surgery, Dr. E. B. Tovee.

Dr. Stewart Lott, a graduate of University of Western Ontario, who had had two years' postgraduate study in Europe has been appointed to direct the operation of Victoria Hospital's cobalt bomb. Dr. Frank Batley who formerly did this work is now with the Hamilton Cancer Clinic.

The Ontario government has agreed to an increase in payments made to doctors for treating the province's 160,000 public assistance cases. These include old age pensioners, the blind pensioners, those receiving mother's allowance, the disabled and those on unemployment relief. The former payment was at the rate of 85 cents, now it is $1.05 a month for every person in these categories. Saskatchewan is said to pay $1.50 for this work.

LILLIAN A. CHASE

QUEBEC

The Verdun General Hospital invites all physicians, interns and medical students to the second part of the three year course on basic medical sciences. These were inaugurated last year under the direction of Dr. J. M. Beauregard, F.R.C.P.[C.], chief of the medical service of the hospital this year. The course will deal with pathology and therapeutics. The conferences are held at the hospital each saturday at 8.30 a.m. beginning on October 4.

Laval Medical School has organized a course in medical technology which has been in operation since October 1951. The course consists of two periods of 50 weeks each. In the first year the teaching is on the theory of basic sciences, and the second year is devoted solely to

practical work in the teaching hospitals and in a specially designed laboratory. Examinations are held both during and at the end of the course. Courses are held in French, although English may be used if desired. There is a special course in English on the program. At the end of the first year of operation, 35 students successfully made the grade, and a greater number of registrations is contemplated for the coming year.

Dr. John W. Gerrie, Director, Sub-department of plastic surgery, Montreal General Hospital, has been elected president of the American Society of Maxillofacial Surgeons at the annual meeting in San Diego, California.

SASKATCHEWAN

Saskatoon and Regina were favoured this month by a visit from Dr. John C. Leonard, the Educational Director of the Hartford Hospital, Hartford, Connecticut. Dr. Leonard is associated with Yale University and has a notable background of experience in medical Education.

While here Dr. Leonard addressed many of the medical people of this Province on medical teaching and training. In particular he referred to the University's developing program now planned in association with the expanding Medical College. His remarks were greatly appreciated and will add much of benefit to the University's planning.

Premier T. C. Douglas laid the cornerstone of the new University Hospital at Saskatoon on Friday, September 19, 1952. He dedicated the institution to the "Glory of God, to the benefit of health, care of the sick and as a monument by which the future generations can see that we cared for others and planned well for the years that lie ahead."

Premier Douglas in speaking, stated that while there were many calls on the public purse the Government along with the Board of Governors of the University had been convinced that there was a great need for clinical teaching facilities in association with the College.

Although the Hospital will not be complete until 1954 the Blood Bank operated by the Red Cross will be opened in a few weeks time. Cancer patients on the other hand are already being treated by the Cobalt Unit now installed in the completed part of the building.

Recently Dr. John Orr, the Medical Director of the Saskatchewan Anti-Tuberculosis League reported an all-time low tuberculosis mortality rate of only 10 per 100,000 population for non-Indians in Saskatchewan for 1951.

With this steadily falling death rate fewer new cases are being found in spite of the intensified x-ray survey of the entire population.

A new hospital has been opened at Rosthern to serve the town of Rosthern, the villages of Laird, Duck Lake and Hague. The Rosthern Union Hospital includes 21 beds and related facilities—case room, operating room, clinical laboratory, x-ray and public health clinic.

The Saskatoon and District Medical Society held a dinner in the Saskatoon Club on Monday, September 22. Sir Stanford Cade of London, England was guest speaker.

G. W. PEACOCK

NEWS OF THE MEDICAL SERVICES

Surgeon Commander J. C. Gray, D.S.C., R.C.N., commenced postgraduate training in internal medicine at the Post Graduate Medical School, London, England. He was formerly officer-in-charge, RCN Medical Branch School and Principal Medical Officer, RCN Hospital, Esquimalt, B.C. These duties have now been assumed by Surgeon Commander J. W. Rogers.

Colonel J. N. B. Crawford, M.B.E., E.D., R.C.A.M.C., attended the Conference of the International Red Cross, held in Toronto, July 23 to August 9, 1952, as observer for the Inter-Service Medical Committee and the International Committee of Military Medicine and Pharmacy.

Majors F. C. R. Chalke and J. F. Evans and Captain C. J. Thiel have returned to Canada after serving a tour of duty in Japan and Korea and Captains C. J. Carnahan and R. A. Duncan have been posted to the Far East as replacement medical officers.

The following medical officers were recently promoted to the rank of Lieutenant-Colonel: Lieut.-Col. U. Blier, formerly Area Medical Officer, Eastern Quebec Area, Quebec City, and appointed officer Commanding, Montreal Military Hospital. Lieut.-Col. R. Mellow, M.C., Kingston Military Hospital and appointed Officer Commanding, 25th Field Ambulance. Lieut.-Col. A. B. C. Powell and appointed Officer-in-Charge Surgery, Toronto Military Hospital. Lieut.-Col. M. Fitch, formerly Deputy Command Medical Officer, Western Command, Edmonton, and appointed Officer Commanding, 38th Field Ambulance. Lieut.-Col. J. P. McCabe, Army Headquarters, Ottawa. Lieut.-Col. J. L. Kinsman, Brook Army Medical Centre, Fort Sam Houston, Texas, U.S.A.

Lieut.-Col. B. L. P. Brosseau, M.C., formerly Officer Commanding, 25th Field Ambulance, has been appointed Area Medical Officer, Eastern Quebec Area, Quebec City.

Lieut.-Col. J. E. Andrew, E.D., formerly Officer-in-Charge, Surgery, Toronto Military Hospital, has been appointed Area Medical Officer, Western Ontario Area, London, Ont., replacing Lieut.-Col. R. B. Murray, E.D., who is attending the 1952-53 postgraduate course leading to a D.P.H., at the School of Hygiene, University of Toronto.

The Nova Scotia Branch of the Defence Medical Association met at Yarmouth, N.S., September 5, 1952, on the occasion of the 99th Annual Meeting of the Nova Scotia Medical Association. At this meeting, Colonel J. N. B. Crawford, M.B.E., E.D., Army Headquarters, presented a paper on "The Medical Aspects of the Korean Campaign". Colonel Crawford also spoke at the dinner meeting of the Nova Scotia Medical Association on the subject of "The Future of Military Medicine".

Wing Commander D. G. M. Nelson, R.C.A.F., proceeded to the United Kingdom and Europe to visit R.C.A.F. bases. In addition Wing Commander Nelson will visit medical facilities of the R.A.F. and U.S.A.F.

The R.C.A.F. conducted a course in Aviation Medicine October 6 to 31, 1952, at the School of Aviation Medicine located at the Institute of Aviation Medicine, Toronto. Thirty-five newly appointed R.C.A.F. officers attended this course. In addition 15 medical officers of the R.C.A.F. Auxiliary attended the first portion of this course for a one week period.

NEWS AND NOTES

[The Editor will be glad to consider any items of medical news or of lighter material that may be sent in for this column.]

BRITISH EMPIRE CANCER CAMPAIGN EXCHANGE FELLOWSHIPS

The British Empire Cancer Campaign has established two Fellowships per annum for Canadians.

These Fellowships are tenable for twelve months and of an approximate value of £1,000 per annum. Travelling expenses of the Fellows from their Canadian residence to England and return will be borne by the National Cancer Institute of Canada. If necessary, an allowance will also be paid for expenses in connection with the work undertaken. The Fellowships are open to those engaged in the

clinical and allied sciences and to those working in fundamental research.

Application forms may be obtained from: The National Cancer Institute of Canada, Administrative Office: 800 Bay Street, Toronto, Ontario..

Applications should be submitted to the above address not later than November 15, 1952. Awards will be announced December 10, 1952. Fellowships will become tenable July 1, 1953.

OTTAWA GENERAL HOSPITAL SETS UP MENTAL HEALTH SERVICE

The Ottawa General Hospital has just been awarded a federal health grant to assist it in setting up a mental health service. The clinical services to be developed will be directed by the distinguished psychiatrist, Dr. Karl Stern, who has come to Ottawa as professor of psychiatry at the University of Ottawa's medical school and as psychiatrist-in-chief at the General Hospital. Plans involve establishing out-patient mental health clinics for both adults and children. The clinic for adults will function three half-days a week, and will be staffed by a full-time psychologist and a psychiatric social worker.

The plan also calls for an in-patient service for a maximum of 30 patients. This will be supervised by Dr. Victorin Voyer, assisted by a senior intern. The short-term care of mental illnesses in wards connected with general hospitals is in line with the latest thinking in hospital and health administration, and will provide Ottawa with a valuable new health service. Part of the treatment program for in-patients and for a considerable number of out-patients will include occupational therapy. The federal grant will be used to meet the salaries of two occupational therapists and to help provide occupational therapy equipment.

The psychologists and social workers attached to the clinics will give considerable time to the evaluation of tests, to interviews with parents and to liaison work with other community agencies.

COMMENTS ON PREPAID MEDICAL CARE PLANS

The following comments on prepaid medical care plans have been made by Dr. R. M. Anderson, President of Physicians' Services Inc., in a letter to the editor of the *Vancouver Medical Bulletin*. After saying that he was in agreement with the editorial view that prepaid medical care plans are our only answer to prevent, in part, at least a completely socialized form of medical care, he continued:

"The longer I am connected with prepaid medical care, however, the more I am convinced that the statement you made that prepaid plans do not go far enough, is true. At the present time, although rapidly expanding, our Corporation is now offering care to only 265,000 people in this vast province—a mere drop in the bucket. I cannot visualize, even with maximum expansion, our reaching hundreds of thousands of people who need to be reached. It is here of course, that state subsidy must be brought in.

"You raise a second point that medical men must play fair with prepaid plans. The conviction is growing stronger in my mind day by day that there are three types of medical people who are going to pull down the whole medical profession unless we can check their stupidity.

"In the first place there is the doctor who charges excessive fees; this applies of course to specialists, but the general practitioners are involved as well. We have had brought to our attention innumerable instances of gross over-charging by specialists—fees that were just out of all reason. We know that many of the exorbitant fees are levelled at people without any regard to their economic status. For example, we saw the other day accounts run up by two workmen in the U.S. for hospital and surgical fees and the total in one case was $15,000.00 and in the other $12,000.00. These bills were incurred in a period of less than a year. We were shown these accounts by the General Manager of one of the largest Corporations in Canada and he assuredly is no socialist, but his comment was, "How far does the Profession think it can get with this sort of thing?" Our own participating specialists in P.S.I. in general bill fairly, but there is a small percentage of them who persistently overbill everybody regardless of economic status. This of course, does only one thing—it just creates the most frightful type of public relations.

"The second type of doctor who worries me is the fellow who is against the entire principle of prepaid care and who refuses to look in the eye of reality. We have our share of them in this province. This fellow and people like him fortunately constitute a minority, but unhappily a vociferous one. In many instances I suspect that this fellow is not so much opposed to the principle as he is to the fact that there is some control over his fee by somebody else.

"The third type is the fellow who pays lip-service to the principle of prepaid care and who participates in the plan and then tries to steal the plan blind. Here again men of this ilk form a minority but a tremendously important one because we realize as we go along that unless we bring them into line they will wreck any plan that ever operated.

"I made mention of these matters in public in May in Hamilton and the repercussions have not been serious although we had one specialist resign from P.S.I. because of my statements. It is time that the profession gets rid of those who are fouling our own nest."

THE RED CROSS EMBLEM

The emblem of the Red Cross organization (a red cross on a white background) is familiar in its merciful function—its only function—and in the ordinary course of things one does not look for that function to be disturbed.

It is apparent however that abuses of the emblem are occurring,* with consequent weakening of its significance, and at a recent conference between the International Committee of the Red Cross and the World Medical Association steps were taken to publicize the rules governing its correct use.

Why was such an emblem adopted at all? Long before the founding of the Red Cross it was sometimes arranged to mark military hospitals and ambulances with a distinctive flag, which varied with the occasion and the country. Those responsible for the Red Cross and the Geneva Convention recognized that there should be a uniform international emblem to signify the immunity extended to the wounded and the medical personnel, and in 1864, in the drawing up of the Geneva Conference the red cross on a white background was adopted as the distinguishing emblem.

No special reasons were given for the choice of the colours or design. Later on it was remarked that the emblem was adopted as a tribute to Switzerland, although in the Swiss federal colours the colours are reversed, and the cross is placed differently on the background. But whilst some tribute may have been due to Switzerland in the founding of the Red Cross it was never intended that the emblem should have any national significance at all. The essence of the organization was that it should be international and neutral.

The resemblance to the Swiss national flag has caused no special difficulty, but before long the cross in the emblem was objected to by Turkey (who had agreed to the original form) and later Siam and Persia also wanted to replace it. Turkey wanted to use a crescent, Siam a red flame and Persia a red sun. Turkey's objection apparently was made on religious grounds, and although

*See THE SIGN OF THE RED CROSS AND THE REPRESSION OF ABUSES OF THE RED CROSS EMBLEM: Jean S. Pictet, Rev. Internat. de la Croix Rouge, December 1951 and January 1952.

(Continued on page 66 of the advertising section)

BOOK REVIEWS

DISEASES OF THE HEART AND CIRCULATION

A. A. Fitzgerald Peel, Physician for Diseases of the Heart, Victoria Infirmary, Glasgow, Medical Consultant, Department of Health for Scotland and Ministry of Labour and National Service Recruiting Boards. 472 pp. Illus. 2nd ed. $7.00. Oxford University Press, London, Toronto, 1952.

There have been a number of important advances in diagnosis and treatment of cardiovascular disease since the first edition appeared. Auricular catheterization has shed new light on the mechanism of cardiac failure; phonocardiography has clarified some of the problems connected with cardiac auscultation; multiple unipolar chest leads have rendered more precise the cardiographic diagnosis of myocardial lesions, and angio-cardiography has done the same for congenital heart disease. Knowledge gained by these methods has been incorporated in the new edition.

The chapters dealing with abnormalities of the ventricular complexes of cardiograms and with congenital heart disease have been largely rewritten, and the latter has been expanded to include additional congenital malformations, as well as the surgical treatment of the cyanotic group of cases. The sections dealing with low blood pressure, gallop rhythm, symptomatology of thrombo-angiitis obliterans, and surgical treatment of hypertension have been rewritten. New material has been introduced such as the sections dealing with the causes, mechanism, symptoms, and treatment of peripheral circulatory failure, the cardiovascular system in various acute infections and in tuberculosis, pneumothorax, temporal arteritis, acute coronary insufficiency, traumatic cardiac lesions, and arterio-venous fistulæ. The use of anti-coagulants, the penicillin treatment of bacterial endocarditis, thiocyanate treatment of hypertension, the use of low sodium diets in hypertension, and in cardiac failure, thiouracil, and theophylline-ethylenediamine are described and discussed.

The present volume is of necessity somewhat larger than the previous one; its usefulness to student and practitioners alike cannot be doubted. The illustrations are adequate, and paper and print are good.

THE MUSCULOSKELETAL SYSTEM

A Symposium, presented at the Twenty-third graduate fortnight of the New York Academy of Medicine, October 9-20th, 1950. Edited by M. Ashford. 368 pp., illust. $6.50. The Macmillan Company, New York, Toronto, 1952.

It should be stated clearly at the outset that the purpose of the Graduate Fortnight of the New York Academy of Medicine is the continued education of the general practitioner. Although these presentations have been an annual event since 1927, the present volume is the first to appear in book form—future Fortnights will follow this pattern.

The plan of this series is to select a broad topic of timely interest and then to gather a panel of experts to discuss the topic in all its aspects. In contrast to some other symposia, the experts here are apparently asked not to lose themselves and their audience in abstruse and academic points.

This reviewer has found the present volume fascinating, instructive and stimulating. Further, it is at no time heavy going, rather the contrary. The first 3 lectures (chapters) are devoted to sketching in broad outline the deficiencies of our knowledge concerning the structure and chemistry of connective tissue and the physiology of muscle as well as to emphasizing whatever is firm in our basic understanding of these tissues. This is followed by a beautifully straightforward lecture on disordered muscle function by the late Donald McEachern. Similarly, a lecture on bone metabolism precedes lectures on diseases affecting the skeleton, including a separate lecture on rheumatoid arthritis and on gout. There are also lectures on the collagen diseases in general and the various forms of arthritis in particular.

It is a most stimulating book.

CLEFT LIP AND PALATE

W. G. Holdsworth, Surgeon, Rooksdown House, Basingstoke, Consultant in Plastic Surgery, South West Metropolitan Hospital Region. 126 pp. illust. $7.00. William Heinemann Medical Books Ltd.; British Book Service (Canada) Ltd., Toronto, 1951.

In this book, the author presents an excellent coverage of the subject making a rather brief reference to the variety of procedures carried out in the various centres with more particular reference and detailed emphasis on the procedures carried out in Great Britain. The book is well written, quite readable and should provide a very useful reference book for the student surgeon. The literature is well summarized and indeed the book is somewhat unusual in the concise way in which it covers the wide variety of variations as practised in this subject.

HUMAN BIOCHEMISTRY

I. S. Kleiner, Professor of Biochemistry and Director of the Department of Biochemistry, New York Medical College, Flower and Fifth Avenue Hospitals; Formerly Associate, The Rockefeller Institute for Medical Research, New York. 695 pp., illust., 3rd ed. $8.00. The C. V. Mosby Company, St. Louis; McAinsh & Co., Limited, Toronto, 1951.

This is a new edition of a well-known textbook. Like the previous editions, emphasis is directed towards the clinical aspects of biochemistry. At the same time the necessary fundamentals are given ample scope. The chapters on mineral metabolism and water balance, respiration and acid-base balance, blood coagulation and vitamin A have been rewritten and brought up-to-date. The chapters on enzymes, vitamins, hormones and metabolism have been expanded. Like its predecessors, the book covers adequately the fundamental aspects of biochemistry as they are related to the practice of medicine. It should, therefore, be of great aid to medical students as well as to practicing physicians.

THE CLINICAL USE OF FLUID AND ELECTROLYTE

J. H. Bland, Assistant Professor of Medicine, University of Vermont College of Medicine. 259 pp. Illust. $6.85. W. B. Saunders Company, Philadelphia; McAinsh and Co. Limited, Toronto, 1952.

This book is written for the physician who has no special knowledge of electrolyte balance. The first chapter introduces the basic physiological principles and clearly explains the various terms such as osmotic pressure, milliequivalents, molar solutions etc. With this basic knowledge the reader progresses to the various disease states, in the treatment of which an intelligent knowledge of fluid and electrolyte balance is essential. Excellent chapters cover congestive heart failure, renal disease, diabetes mellitus, ACTH and cortisone. Chapters on parenteral fluids in surgical patients and pædiatric practice will particularly appeal to those interested in these fields. Sufficient background of the subject is presented at the beginning of these chapters to acquaint the reader with the problem. The clinical picture of the various disturbances is then covered and finally treatment is clearly outlined.

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The chief criticism of the book is in the publication. It lacks headings and sufficient breakdown of subject matter. There is no index. The single format is difficult to read and a double format would be an improvement.

This excellent book is recommended for those who desire a working knowledge of fluid and electrolyte balance and for those familiar with the subject, but who require a ready source of information to meet a particular problem.

BRITISH SURGICAL PRACTICE: SURGICAL PROGRESS 1951

Sir E. R. Carling, consulting surgeon, Westminster Hospital and Sir J. P. Ross, Surgeon and Director of Surgical Clinical Unit, St. Bartholomew's Hospital. 420 pp. Illust. Butterworth & Co. of Canada Ltd., Toronto, 1951.

This is the first in an annual series of supplementary volumes to British Surgical Practice. It is designed to keep the eight volumes up to date, and the method employed has been to divide the book into three parts. Part I includes twelve original articles, all of these filling in omissions and gaps in the first eight volumes. Of these, four articles must be mentioned in particular. The first, "The Anatomy of the Autonomic Nervous System", by Professor G. A. G. Mitchell has clear illustrations, diagrams and tables as well as the usual clearly classified text. The second, "Spondylolisthesis", by Dr. R. I. Harris of Toronto is well worth reading, while the articles on Hirschsprung's Disease and the Antibiotics included here were really most necessary. Their omission in earlier volumes has been pointed out in a previous review.

Part II, Critical Surveys, is one of the most valuable sections of the volume. It includes "Progress in Arterial Surgery" by Mr. J. B. Kinmonth, "Coagulants and Anticoagulants" by Sir James Learmonth, "The Hand" by Mr. J. N. Barron, "Radioactive Isotopes—Clinical Uses" by Dr. E. E. Pochon, and "Stress Incontinence" by Mr. J. J. O'Sullivan. All these articles are highly recommended. They are clear, concise and have a useful bibliography. Part III, the Abstracts, is a large section with many titles. These abstracts serve as a follow-up, and all are cross-indexed conveniently to the appropriate volumes. After the index there is a final section called "Noter-Up" 1951. This repeats the titles of each article in the eight volumes. It indicates where the additions have been made to the whole work by this book.

It is interesting to note that several of my friends were not intrigued by this system of surgery at first, but they have now been completely converted. They use it in practice and in the preparation of lectures and for examination study. All my previous adverse criticisms have been removed by the appearance of Surgical Progress, 1951.

SURVEY OF COMPOUNDS WHICH HAVE BEEN TESTED FOR CARCINOGENIC ACTIVITY.

J. Hartwell, National Cancer Institute, National Institutes of Health, Bethesda, Maryland. 583 pp., 2nd ed. $4.25. United States Government Printing Office, Washington, 1951.

Since the first edition of this Survey, which covered the literature on experimental carcinogenesis to 1939, so much new material accumulated during the ensuing eight years that the present volume became a necessity.

In the second edition, 1,329 compounds are listed, as compared with 696 compounds in the previous one. Of the compounds investigated, approximately every one out of four exhibited carcinogenic properties. Carcinogens are widely distributed among chemical compounds, and it may be assumed that more carcinogenic substances will be discovered, in approximately the same ratio, as more compounds are investigated.

The author is aware of one of the pitfalls in the use of such a survey and he quotes from Shear and Leiter (*J. Nat. Cancer Inst.*, 2: 254, 1941) ". . . it is desirable to bear in mind that the statement to the effect that given compounds are noncarcinogenic does not necessarily mean that they are incapable of inducing malignant tumours; it means only that the compounds did not give rise to tumours under the conditions of certain experiments of restricted scope. . . . There are pronounced differences in the response of different species to the action of compounds carcinogenic in the case of the mouse, etc."

In spite of such limitations this comprehensive and systematic compilation of compounds, which have been found to cause cancer in a variety of species, including man, will be of considerable interest to all those working in this field.

THE MEANING AND PRACTICE OF PSYCHOTHERAPY

V. E. Fisher, Psychologist and Psychotherapist, Formerly: Assistant Psychologist, Worcester State Hospital; Assistant Professor of Psychology and Director of the Mental Clinic, New York University, Washington Square College. 411 pp. $5.00. The Macmillan Company, New York. The Macmillan Company of Canada, Toronto, 1950.

This book is written by a psychologist and not by a physician trained in psychiatry. This is obvious from the many naïve and incorrect statements to be found throughout the work. It is not recommended.

HEART DISEASE

P. D. White, Executive Director, National Advisory Heart Council; Consultant to the Massachusetts General Hospital, Boston. 1015 pp., illust., 4th ed. $12.00. The Macmillan Company, New York, Toronto, 1951.

This fourth edition of one of the classics in cardiology hardly needs any introduction to the reader. It incorporates much of the recent progress in cardiology without any great increase in size over previous editions. This has been achieved by abridging the chapters dealing with now well-known cardiovascular diseases and their treatment, thus allowing the author to devote more space to those conditions now under vigorous investigation. In Part I, "Cardiovascular Examination. Symptoms and Signs", the chapter "Electrocardiography" has been re-written and gives the present status in this field. The chapter on "Cardiovascular Roentgenology" has been enriched by the inclusion of new techniques, such as kymography,—and an account of ballistocardiography has been added to the discussion of cardiovascular graphic records in chapter 8.

Most of the chapter on "Coronary Insufficiency, Including the Symptom Angina Pectoris", of the previous edition has been incorporated into the chapter on "Coronary Heart Disease. Angina Pectoris. Coronary Thrombosis and Myocardial Infarction", thus avoiding repetition and at the same time making it, in view of the present incidence of coronary disease, one of the most interesting chapters in the book. In it we find a balanced account of the important contributions during recent years, to the study of the etiology of the disease, including the recent work (Gertler and Garn, 1949) on the strikingly low incidence of coronary disease in eunuchs, and the author's observations that the majority of younger cases are mesomorphic (muscular type) males. Needless to say, the discussion of treatment is thoroughly up to date and includes, for instance, the use of ACTH and cortisone, and of massive doses of ascorbic acid, in the management of acute rheumatic fever, and the modern treatment of coronary disease.

The book has been written with a view to stimulating thought and action in the conquest of the three great threats to the health of the population of our time,—namely rheumatic heart disease, high blood pressure and presenile arteriosclerosis,—and it admirably achieves this purpose.

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TABLE OF FOOD VALUES. RECOMMENDED FOR USE IN CANADA

Published under the Authority of the Hon. Paul Martin, Minister of National Health and Welfare. 286 pp., 2nd ed. $1.00. Department of National Health and Welfare, Ottawa, 1951.

The compilation of diets is fraught with difficulties, one of the chief difficulties being the manner in which some food tables are put together. Values given for raw food substances are subject to variations and alterations before they can be correctly applied to food as it reaches the table—and even then one last uncertainty still remains: does the patient really take all of the calculated amount of food on the plate which he is supposed to eat? The Nutrition Division of the Department of National Health and Welfare has now obviated many of these inherent difficulties by selecting figures which are of immediate help to the dietician and by putting them together with much care in such a manner that they can be put to immediate practical use without trouble.

These tables fill a real need of various types of institutions in Canada.

ANTIBIOTIC THERAPY

H. Welch, Director, Division of Antibiotics, Food and Drug Administration, Federal Security Agency of the United States Government; and Charles N. Lewis, Medical Officer, Division of Antibiotics, Food and Drug Administration, Federal Security Agency of the United States Government. 562 pp., illust. $10.00. The Arundel Press, Inc., Washington 13, D.C., 1951.

In these days, when antibiotic therapy is the key note of therapy in the majority of infections that we encounter, I feel that we should welcome such a book.

The authors have gone to endless trouble in order to give us a wealth of information about all the antibiotics in popular use today, as well as some that have not yet found their clinical application.

The first section of the book deals with the isolation and development of the antibiotics. A historical account and also photograph of the founders are interesting additional insertions. One finds a full account of such drugs as Penicillin, Streptomycin, Dihydrostreptomycin, Tyrothricin, Aureomycin, Chloramphenicol, Terramycin, Bacitracin, and a number of others. In the latter half of the book a number of infectious diseases are discussed and the treatment with antibiotics of various types compared, and the one of choice where such is the case suggested. The book is well written, easy to read, and very interesting. It forms a ready clinical desk guide for the rational use of all antibiotics.

THE PRACTICE OF ENDOCRINOLOGY

Revised Edition by Raymond Greene. 389 pp., illust. 65/-. Eyre & Spottiswoode (Publishers) Ltd., 15 Bedford Street, Strand, W.C.2, London, England, 1951.

True to the English tradition of vivid clinical description, this text contains excellent accounts of the various endocrine disorders. It is written for the general practitioner who will find that the authors of the various sections have painted clearcut pictures of the endocrinopathies for his benefit. They have outlined just sufficient of the anatomy, physiology and pathology to serve as a basis for the ready understanding of a particular disease or syndrome. Controversial material and unnecessary references have been left out in order that the particular clinical picture may come into clear focus more readily. Apart from practitioners, postgraduate students seeking higher degrees will find the text ideal for filling in the loopholes in their own experience relating to endocrine abnormalities. Changes in endocrine therapy have been so numerous and rapid in the past two years that a text which was revised in 1950 cannot be altogether up-to-date; however in most respects it is quite adequate. Much of what is now known about cortisone and ACTH could not be included in 1950. There are newer and safer antithyroid drugs to use in place of thiouracil for treating hyperthyroidism and new hypertensive agents that are superior to epinephrine in oil for treating a portion of the hypotensive reaction of the crises of Addison's Disease.

THE HUMAN BLOOD GROUPS

P. H. Andresen, Chief, Municipal Blood Bank, Bispebjerg Hospital, formerly chief, Serological Department, University Institute of Legal Medicine, Copenhagen, Denmark. 114 pp. $4.50. Charles C. Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1952.

This is an introduction to the study of human blood groups and their medico-legal significance. The wide increase in the practical application of blood group determinations not infrequently focuses the attention of non-specialists on questions in this field. This little book will, therefore, be found useful by physicians, lawyers and others interested in these matters. It is written in a clear and simple fashion which is easily understood, also in the absence of a basic medical training. The methods used by medico-legal experts are described, and the accuracy of blood group determinations is discussed.

Since it has been recognized that "blood receptors" are not only present in blood cells, but also in other body cells and secretions, medico-legal blood grouping has extended beyond disputed paternity cases. It is used today in the examination of saliva, gastric juice and semen, although it must be remembered that in 82% of the human race these "blood receptors" do not occur outside the blood. In saliva tests, therefore, two groups can be distinguished: those who exhibit the blood group properties of the A-B-O system in their secretions, and those who do not. The former are called "secretors" and the latter "non-secretors". This phenomenon may play a part in certain cases of disputed paternity. The general properties of blood groups are described, and—apart from the A-B-O system,—the M-N system, the P system, the Rh system, and the subdivision of group A are discussed. This is followed by an outline of the heredity of blood groups, and its medico-legal utilization in cases of disputed paternity. Finally, various other medico-legal aspects of blood group determinations and their reliability are referred to.

This little book may be regarded as a helpful introduction to the subject and may be recommended for this purpose.

PATHOLOGY OF THE FETUS AND THE NEWBORN

E. L. Potter, Associate Professor of Pathology, Department of Obstetrics and Gynæcology, The University of Chicago. 574 pp. Illust. $19.00. Year Book Publishers, Inc., Chicago, Ill., 1952.

It is quite impossible in a short review even to outline the whole field covered by Dr. Edith Potter's new book. This text will undoubtedly become the standard reference book for this subject and very timely it is. The study of development is centuries old now, so that the science of "descriptive embryology" is gradually being supplanted by "experimental embryology". The knowledge gained from the combination of these two approaches to the subject has put us in a position where the mechanisms causing some abnormalities are beginning to be understood. Dr. Potter has developed the thesis that the description of developmental abnormalities is basic to further progress either in treatment or prevention. In the present text she has embodied her wide experience in this field in studies extending over the past eighteen years.

This book is undoubtedly a required reference for pathologists, obstetricians and embryologists. It is well documented, well illustrated and well written.

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HENRY VIII. A DIFFICULT PATIENT

Sir A. S. MacNalty, Honorary Fellow of the Royal Society of Edinburgh, Fellow of University College, London. 202 pp. $4.00. Christopher Johnson Ltd., London, 1952.

Those who have read Sir Arthur MacNalty's writings on Thomas More and Thomas Vicary will not be astonished to learn that he has something further to say about medicine in the early Tudor period. In this book he gives the medical history of Henry VIII—from birth to death—with the purpose of showing the effect of diseases and other physical mishaps on the behaviour of that monarch. There is an account of Henry's heredity, his constitution, his training, his habits, his marriages, the health and obstetrical history of his wives, the number and fate of his legitimate offspring and the results of his adventures in procreation beyond the limits which formed—even in his sometimes hazy theology—the bonds of wedlock. The author seems to have been niggardly neither of time nor of effort in trying to verify dates and references not only in state papers but in extant contemporary comment or correspondence. There are few grave sins of omission. Thus the result is a work which cannot safely be ignored by general historians and which will be almost compulsory reference for those who mean to write authoritatively, or even to dabble, in the history of medicine. In no other volume of comparable size dealing with Tudor medicine has so much information been made so easy of access by succinctness in text and orderliness in arrangement.

Although the work is so largely concerned with Henry VIII, it is too eclectic to be an adequate biography. For the student in general history it can with confidence be prescribed for collateral reading but not as a comprehensive textbook. Severe critics may accuse its author of a lack of impartiality, because he seems to approach his subject from the standpoint of an advocate for the defence rather than from that of an occupant of the bench. A cynical reader may think that praise of Henry —because he vigorously carried out the isolation policy initiated by Wolsey—has the ring of humbug or hypocrisy in today's frantic struggle for European unity. These are minor faults. They should not lessen the book's attractiveness for the scholarly both within and outside the field of medicine.

THE AURICULAR ARRHYTHMIAS

M. Prinzmetal, Attending Physician, Cedars of Lebanon Hospital, E. Corday, Adjunct of Medicine, Cedars of Lebanon Hospital, I. C. Brill, Associate Professor of Clinical Medicine, University of Oregon School of Medicine, R. W. Oblath, Instructor in Medicine, University of Southern California Medical School, H. E. Kruger, Research Assistant, Institute for Medical Research and Associate Authors. 387 pp. Illust. $19.75. Charles C. Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1952.

This book belongs to the category of the unusual for several reasons. A subject which is covered in about ten pages of a 1,000 page monograph on cardiology has a book of almost 400 large pages devoted to it. It is the first book of its kind on the auricular arrhythmias. In addition to the five principal authors, there are eight "associate authors". A new technique, cinematography at rates up to 2,000 frames per second, was added to electrocardiography and oscillography in making the records of heart rhythms. Evidence which re-establishes the unitary theory of auricular arrhythmias and eliminates the circus movement theory is presented at a leisurely pace and in readable form with an abundance of well-chosen and well-made illustrations. The "evidence" was sought out wherever it could be found, in animal experiments, clinical observations and at thoracic surgical operations when the heart was exposed. Adding new observations with improved techniques and new points in logical argument a good case is made for the thesis that the four auricular arrhythmias have in common, one mode of initiation, namely, from a single focus. Premature beats occur when the ectopic focus from which they arise is a slower pacemaker than the sinus mode; paroxysmal tachycardia when it is more rapid than the sinus node (150 to 300 per minute), flutter when still more rapid (300 to 400) and afibrillation when extremely rapid (400 to 600). In auricular fibrillation cinematographic records revealed large (L) waves (400 to 600 per minute) and very small (M) waves whose frequency may be as high as 20,000 per minute. The features of these waves in normal and abnormal hearts constitute a new chapter in the story of this arrhythmia. The question of aberrant QRS complexes related to the auricular arrhythmias is dealt with extensively without providing a satisfactory explanation but the discussion illumines the problem with healthy skepticism of the current theories and by posing new questions. Some new observations on the Wolfe-Parkinson-White syndrome indicate that the mechanism responsible for this phenomenon is far from having been explained. This book was not designed to be a text book dealing exhaustively with all well established facts as well as controversial aspects of the subject. It contains the results of the authors' own investigations and full discussions of their significance. The format and the printing give it a pleasing, elegant appearance.

ADVANCES IN PÆDIATRICS

S. Z. Levine, Editor, Cornell University Medical College, New York. 273 pp. Illust. Vol. V. $7.00. The Year Book Publishers Inc., Chicago, Ill., 1952.

This volume consists of six monographs each written by an outstanding specialist in his own field.

Advances in the Treatment of Bacterial Meningitis by Hattie Alexander is a very up-to-date and comprehensive review of the treatment of each type of bacterial meningitis. The Nephrotic Syndrome in Children is very completely discussed by Henry Barnett *et al.* The Relation of Vitamin K Deficiency to Hæmorrhagic Disease of the Newborn by Dam *et al.* is an excellent review of modern opinion on this disease and is especially valuable because of the discussion of why vitamin K does not prevent all bleeding in the new born. Angiocardiographic Studies in Children by Lind and Wegelius discusses the technique and interpretation of this procedure. Iron Metabolism in Infants and Children by Carl Smith *et al.* is an extensive review of distribution of iron in the body, absorption, transport, utilization, etc. Pathologic iron metabolism is also discussed. BCG Vaccination by Wallgren reviews the whole subject of BCG, including technique of administration, complications, and criteria for vaccination.

The book is chiefly for the pædiatrician who is interested in all these fields, but is also valuable to other specialists.

BRAIN TUMOURS OF CHILDHOOD

H. M. Cuneo, Assistant Clinical Professor of Neurological Surgery, University of Southern California School of Medicine, Los Angeles, Calif. and C. W. Rand, Clinical Professor, Neurological Surgery, University of Southern California, Los Angeles, Calif. 209 pp. Illust. $7.00. Charles C. Thomas, Springfield, Illinois; The Ryerson Press, Toronto, 1952.

This book is an analysis of 83 cases which have been under the authors' personal observation during a period of 10 years. The tumours are well classified into twelve groups, for each of which the clinical picture is detailed and the pathology is adequately presented by good gross and microscopical illustrations and by reproductions of x-ray films. The volume is a good straightforward presentation of this important branch of neurological surgery and it will be welcome particularly to neurosurgeons and neuropathologists.

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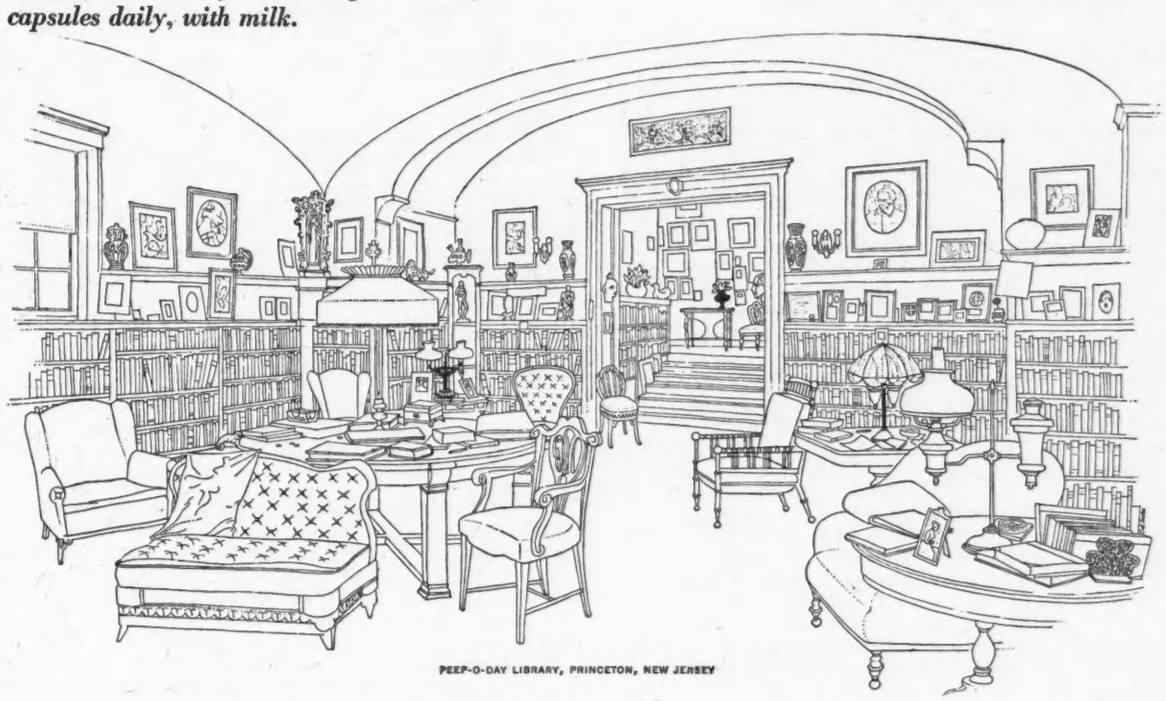

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THE MANAGEMENT OF THE "HOPELESS" CASE.

C. J. Gavey, Physician, Westminster Hospital, London. 41 pp. Illust. 9s. H. K. Lewis & Co. Ltd., London, 1952.

This prize essay, now available in book form, was chosen by the Harveian Society of London as "one deserving of wider recognition". Although medical men, in their practice, are constantly confronted with last illnesses and death, they rarely talk about the meaning of death, and little attention is given during their training, to the question of how to deal with the incurably sick. Dr. Gavey suggests that students should be stimulated to study this problem as soon as they come across a suitable patient, who may serve to illustrate fundamental principles, for another opportunity may not arise in their curriculum for a long time. Nurses, too, should receive a talk on the subject early in their career.

Sainsbury warned that "the sting of Death is in the foretaste, in the anticipation rather than in the realization"; yet, Dr. Gavey advises us, we cannot neglect our responsibility of judging when this moment has come. It is important to avoid mystery, though a sudden announcement of the true nature of the disease may have disastrous results, even suicide, and a more guarded prognosis, slowly revealed, is preferable in order to enable a patient to prepare himself for a possible blow. Ryle wrote "Could we but teach them to be less fearful, what a service to humanity we might render!" Often the patient senses the true position far more accurately than one might imagine, and mutual confidence will pay.

It is the physician's duty to fight to the last, and to come to the bedside with a great hopefulness and with determined optimism, never excluding all hope completely. Of euthanasia, the author says "the world is not ready for the established practice of euthanasia and the decision as to when, if ever, a patient should be helped over the border, rests on a higher plane of judgment than can be laid down in rules or laws . . .".

HANDBOOK OF DISEASES OF THE BLOOD

A. Piney, Physician, St. Mary's Hospital, Plaistow; late Director, Pathological Department, Cancer Hospital and Charing Cross Hospital Institute of Pathology, London. 213 pp. Illust. J. B. Lippincott Company, Montreal, 1951.

This book is concise and well organized in the material it presents. It emphasizes the need of clinical study of hæmatological cases rather than a complete dependence on laboratory methods. The clinical pictures described are excellent and the laboratory findings are clear and free of controversial detail. This book is highly recommended for what it claims to be—"a practitioner's handbook", and any practitioner would find it a very useful addition to his library, not only as a modern survey of clinical hæmatology, but also very useful in handling the treatment of his cases of blood disease.

THE BRITISH PHARMACEUTICAL CODEX, 1949. Supplement 1952.

Published by Direction of the Council of the Pharmaceutical Society of Great Britain. 148 pp. $8.00. The Pharmaceutical Press, London; McClelland & Stewart, Ltd., Toronto, 1952.

This supplement brings the British Pharmacopœia, its Addendum and the British Pharmaceutical Codex, right up to date. Additions and amendments have been made to general monographs; antisera, vaccines and related substances; preparations of human blood; surgical ligatures and sutures; surgical dressings; formulary and appendices. Under "General Monographs" the 36 newly added substances include Aureomycin, Decamethonium, and Pentamethonium. Under "Surgical Dressings" the use of rayon as a partial replacement for cotton in certain dressings has been recognized. Under "Preparations of Human Blood" eight monographs have been suitably amended to conform to modern standards.

Books Received

Books are acknowledged as received, but in some cases reviews will also be made in later issues.

Chronicle of the World Health Organization. Venereal-Disease-Control demonstration in India. 111 pp. Illust. $0.20. Sw. fr. 0.75. World Health Organization, Palais des Nations, Geneva, April, 1952.

Indian Hemp. Donald McI. Johnson, Barrister-at-law. 112 pp. $2.00. Christopher Johnson, London; The Ryerson Press, Toronto, 1952.

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Biochemical Studies of Bacterial Viruses. E. A. Evans, Jr., Professor and Chairman of the Department of Biochemistry, University of Chicago. 68 pp. $2.75. The University of Chicago Press, Chicago 37. Illinois. 1952.

Poisoning. W. F. von Oettingen, National Institutes of Health, U.S. Public Health Service, Federal Security Agency, Bethesda, Md. 524 pp. $10.00. Paul B. Hoeber, Inc., New York, 1952.

Theory and Practice of Nursing. M. A. Gullan, S.R.N., Member of the Royal College of Nursing, Late Sister Tutor, St. Thomas's Hospital, London. 239 pp. 6th ed. 18/- net. H. K. Lewis & Co. Ltd., London, 1952.

A Textbook on the Nursing and Diseases of Sick Children. Edited by A. Moncrieff, Nuffield Professor of Child Health, University of London, and Director, Institute of Child Health; Physician, The Hospital for Sick Children, Great Ormond Street, London. 770 pp. Illust. 37s 6d. net. 5th ed. H. K. Lewis & Co. Ltd., London, 1952.

Expert Committee on Cholera. World Health Organization Technical Report Series. No. 52. $0.15, Sw. fr. 0.60. 18 pp. First Report. World Health Organization, Palais Des Nations, Geneva, 1952.

Kwashiorkor in Africa. World Health Organization: Monograph Series No. 8. J. F. Brock, Professor of the Practice of Medicine, University of Cape Town, South Africa, and M. Autret, Chief, Area and Field Branch, Nutritional Division, Food and Agriculture Organization of the United Nations. $1.00. Sw. fr. 4.—. 78 pp. Illus. World Health Organization, Palais Des Nations, Geneva, 1952.

Figure Della Medicina Contemporanea Italiana. G. P. Arcieri, Docente di Storia della Medicina. 350 pp. Illus. S. F. Vanni, New York; Fratelli Bocca Editori, Italy, 1952.

Advances in Medicine and Surgery. From the Graduate School of Medicine of the University of Pennsylvania. 441 pp. Illus. $8.50. W. B. Saunders Company, Philadelphia; McAinsh & Co. Limited, Toronto, 1952.

The Scalp in Health and Disease. H. T. Behrman, Assistant Clinical Professor Dermatology, New York University Post-Graduate Medical School; Adjunct Dermatologist, Mount Sinai Hospital; Attending Dermatologist, Hillside Psychiatric Institute. 566 pp. Illust. $14.00. C. V. Mosby Co., St. Louis; McAinsh & Co. Ltd., Toronto, 1952.

The Toxæmia of Pregnancy. W. J. Dieckmann, Mary Campau Ryerson, Professor and Chairman of the Department of Obstetrics and Gynæcology of the University of Chicago. 710 pp. Illus. 2nd ed. $15.25. The C. V. Mosby Company, St. Louis; McAinsh & Co. Ltd., Toronto, 1952.

Psychology, the Nurse and the Patient. D. M. Odlum, Senior Psychiatrist, Elizabeth Anderson Hospital, London Consultant Psychotherapist, West End Hospital for Nervous Diseases, London. 114 pp. 7/6d. Nursing Mirror, London, 1952.

Ambulatory Proctology. A. J. Cantor, Proctologist, Kew Gardens General Hospital, Long Island, New York; Formerly Assistant Attending Gastroenterologist, Queens General Hospital and Assistant Adjunct Proctologist, Hospital for Joint Diseases, New York. 563 pp. Illus. 2nd ed. Revised. $10.00. Paul B. Hoeber, Inc., New York, 1952.

World Health Organization. Technical Report Series, No. 57, Expert Committee on Drugs Liable to Produce Addiction. 14 pp. $0.10, Sw. fr. 0.40. Available also in a French Edition. World Health Organization, Palais Des Nations, Geneva, Switzerland, March, 1952.

Medical Research Council Memorandum, No. 26. The Treatment of Acute Dehydration in Infants, by a Working Team appointed and advised by the Committee on Acute Infections in Infancy. 49 pp. 3s. net. Her Majesty's Stationery Office, London, 1952.

Bacitracin. A review and Digest of the Literature up to and including January, 1952. 127 pp. S. B. Penick and Company, New York, 1952.

Triebpathologie. L. Szondi. 1st Vol. Gln. Fr. 58. 543 pp. Verlag Hans Huber, Bern; Grune & Stratton Inc., New York, 1952.

Advances in Pædiatrics. S. Z. Levine, Editor, Cornell University Medical College, New York. 273 pp. $7.00. Illust. Vol. V. The Year Book Publishers Inc., Chicago, Ill., 1952.

JOURNAL OF

Canadian Medical Association

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General Secretary's office—135 St. Clair Ave. W., Toronto

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References: in the case of a journal arrange as follows: author (JONES, A. B.), title, journal, volume, page, year. In the case of a book: WILSON, A., Practice of Medicine, Macmillan, London, 1st ed., p. 120, 1922.

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News: The Editor will be glad to consider any items of news that may be sent in by readers.

CLASSIFIED ADVERTISEMENTS

Send copy to Canadian Medical Association, 3640 University Street, Montreal, not later than the fifteenth of the month previous to issue.
Rates: $2.50 for each insertion of 40 words or less, additional words 5c each.

NOTICE.—FELLOWSHIP IN CLINICAL INVESTIGATION. Applications are invited before December 1, 1952, for the Fellowship in Clinical Investigation. Tenure 12 months from July 1, 1953. Value $3,000. No board or residence. Applicants should have at least 2 years' postgraduate training or internship. Preference given to those having training in Pathology or Clinical Sciences. Address: Secretary, Medical Board, Vancouver General Hospital, Vancouver, B.C.

MEDICAL SECRETARY.—Highly qualified medical secretary with comprehensive knowledge of terminology offers her services in connection with typing and preparation of manuscripts, etc., for publication or otherwise. Material may be mailed to and from. Charges moderate—per page or per hour. Satisfactory work assured. Mrs. D. Spicer, 595 Dawson Avenue, Town of Mount Royal, Quebec. Telephone: ATlantic 3596.

NOTICE. — APPLICATION FOR INTERNSHIP AT ST. LUKE HOSPITAL. St. Luke Hospital in Montreal will consider the applications of doctors requesting internship through its various services. St. Luke Hospital has a capacity of 456 beds and is approved by The Canadian Medical Association and also approved by the American College of Surgeons; the quarters for interns were very recently furnished and offer first rate accommodation; salary, $75.00 per month through the first year; $100 per month the following year. Written applications should be sent to Dr. Harold Tétrault, St. Luke Hospital, 1058 St. Denis Street, Montreal, P.Q.

FOR SALE.—Retired physician's attractive home and attached offices in the Town of Perth, Eastern Ontario. Brick house on corner lot, large living room, dining room, four bedrooms, sun porch, garage, oil heating. Well equipped hospital three blocks. This property is in good location close to the business area and offers an excellent opportunity for a doctor or other professional man. Apply Drawer 10, Perth, Ontario.

FOR SALE.—Model F Victor portable x-ray complete with stand, fluoroscopy screen and dark room fixtures, $500.00. Apply Dr. P. L. Steele, Balcarres, Saskatchewan.

FOR SALE.—Large, general practice. Office and apartment in revenue producing building. Revenue takes care of overhead. Two hours north of Toronto. $42,000.00, easy terms. Wonderful opportunity. No question of working up practice. It is here waiting. Owner must take rest. Apply to Box 455, Canadian Medical Association Journal, 3640 University Street, Montreal.

FOR SALE.—Good general practice in Central Ontario village about 1½ hours' driving distance from Toronto. Well-equipped open hospital 12 miles distant. Large solid brick house with contained office space. Price $12,000.00. Apply to Box 487, Canadian Medical Association Journal, 3640 University Street, Montreal.

FOR SALE.—Hamilton—Doctor's house. Attractive location with offices, including established general practice with industrial appointments. Doctor entering specialized field January 1. Full price $22,000, mortgage $8,000. If interested apply at once to Box 500, Canadian Medical Association Journal, 3640 University Street, Montreal.

FOR SALE.—Doctor entering Navy. Selling large and well-established practice, also residence with modern offices attached. Located in an industrial town in Nova Scotia, that has a new open 40-bed general hospital. Liberal terms can be arranged. Available December 1. Apply to Box 502, Canadian Medical Association Journal, 3640 University Street, Montreal.

FOR RENT.—Medical and dental offices for rent on ground floor, 260 St. Clair Avenue West, at Russell Hill Road, Toronto. Apply to Dr. S. K. Clark, 267 Russell Hill Road, Toronto. Telephone MIdway 9933.

FOR RENT.—Ground floor office, suite formerly occupied by physician. Prominent corner building containing modern drug store and new dental suite. Heavily populated Vaughan-St. Clair district, Toronto. Apply to Box 491, Canadian Medical Association Journal, 3640 University Street, Montreal.

POSITION WANTED.—English general surgeon seeks association in group practice or clinic. M.B., B.S.(Lond.); F.R.C.S. (Eng.); F.I.C.S.; Hunterian Professor R.C.S.(Eng.). Wide surgical and teaching experience. Specialty gastro-enterology, particularly gastric surgery. Age 45, married with two children. Arriving Canada early January, 1953. Reply by airmail to A. D. B., Royal Society of Medicine, Wimpole Street, London, W.1, England.

POSITION WANTED.—Assistantship or partnership in G.P. wanted by energetic, young British doctor. Age 26, married, one child. L.R.C.P.(Lond.), M.R.C.S.(Eng.) 1949. St. Bart's Hospital, London. Army and general practice experience. Excellent references. Particularly interested Alberta. Available immediately—Dr. N. Jones, 71, Hendon Lane, London N.3, England.

POSITION WANTED.—Canadian obstetrician/gynæcologist, age 35, M.D.(Toronto), M.R.C.O.G., L.M.C.C., desires association with group or any opportunity to practice specialty. Wide experience. Excellent references. Apply to Box 416, Canadian Medical Association Journal, 3640 University Street, Montreal.

Continued on page 36

Thirty Years Ago . . .

From the *Journal* of November, 1922

(Comment on THE SEMON LECTURE AT THE UNIVERSITY OF LONDON)

"It is seldom that Canada has been so honoured as it has been this year when two of its University professors delivered notable addresses in England. Prof. H. S. Birkett gave the fourth Semon lecture before the Royal Society of Medicine in London, and Prof. R. F. Ruttan read the Presidential Address before the Society of Chemical Industry."

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CORRESPONDENCE

"To the Editors: The need of a Quebec Workmen's Compensation Act, which provides for some compensation for the medical attendant who cares for the employee in a hospital, is urgently felt. In fact there is no adequate provision for the payment of services to an injured employee, though contractors and employes of labour are, by law, required to furnish medical attendance. . . .

". . . . The matter is one that our various medical societies could very properly attempt to bring before the Provincial Legislature in the immediate future."

A QUEBEC SURGEON

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News Items—Alberta

ALBERTA MEDICAL ASSOCIATION

"The annual convention of the Alberta Medical Association was held in the Medical Building of the University of Alberta, Edmonton, September 6th, 7th and 8th, 1922.

"September 6th at 10.15 a.m. the President, Dr. Archer, called the meeting to order. As there was not a quorum present, business could not be proceeded with, but the president outlined for informal discussion the problems relating to an extension of the Workmen's Compensation Act to cover farm labourers and transients. Dr. Swartzlander gave an outline of the circumstances in the dried out areas where a moratorium has been declared to cover farmers. At the present time, doctors are not classed as preferred creditors and cannot collect any fees. He gave notice that he would move for the appointment of a committee to wait on the government with a view to obtaining this privilege for doctors. . . . Dr. Gilmour, of Winnipeg, gave a lecture on 'Diabetes Mellitus'. Prof. Collip, University of Alberta followed with an outline of the investigations carried out by himself and associates which has resulted in the discovery of the internal secretion of the pancreas which they have named 'Insulin'. He demonstrated the action of insulin on rabbits and the neutralizing effect on a hypodermic injection of sugar. The marvellous results were almost instantaneous. . . . On motion, the following resolutions were adopted. (1) That this Association wishes to congratulate Dr. Collip on his work in connection with the production of insulin. . . . ."

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News Items—Nova Scotia

DALHOUSIE UNIVERSITY—CEREMONIES AT THE LAYING OF THE CORNER STONE OF THE NEW MEDICAL SCIENCE LABORATORY BUILDING

" 'Dedicated to the glory of God and for the good of man.' In the words of Dr. John Stewart, Dean of the Faculty of Medicine, who performed the ceremony, the corner stone of the Medical Science Laboratory Building of Dalhousie University was laid. Simple and impressive exercises marked the occasion."

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News Items—Quebec

"A memorial window has been placed in the Medical Building of McGill University by the teaching staff of the Medical Faculty in memory of the late Lieut.-Colonel John McCrae, Lieut.-Colonel H. B. Yates and Lieut. Colonel R. P. Campbell. The window designed by Prof. Nobbs, late Professor of Architecture, is placed in the hall on the first floor directly over the main entrance to the building, and is in three divisions. The central portion dedicated to Lieut.-Colonel John McCrae displays in the centre, rows of crosses standing on a field of poppies; a jewelled plaque displays a book and a quill. The section on the right dedicated to Lieut.-Colonel Yates shows the town of Boulogne; its plaque bears a microscope. The section on the left to the memory of Lieut.-Colonel Campbell shows a view of the Thiepval front where he was killed in action. The plaque displays a surgeon's knife, bandage and scissors. Above, in the centre light, a radiant sun is shown on the horizon with rays spreading upward and to each side. On the far left strings of maple leaves entwine a group of poplars, on the right are sprigs of laurel similarly grouped."

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NEWS AND NOTES

(Continued from page 496)

it was specifically denied by a later International Conference that there was any religious significance in the emblem, the countries named insisted on replacing the cross with their own national signs; and this was recognized by the international body. Vigorous attempts were made at the 1929 Convention to return to a single emblem; it was pleaded that the cross had no religious significance and that substitution of other symbols by different countries would lead to confusion with national flags. It was proposed that the Near East countries might have the significance of the sign explained to them, one delegate remarking that the plus sign is never objected to anywhere because it is a cross. But it still was insisted that the red cross sign could not be introduced into Moslem countries. This may be described as a form of conditioned reflex based on religious associations.

At present whilst there is still a strong tendency to retain the single red cross emblem and to refrain from having certain countries use individual symbols, the red cross remains with the two exceptions noted—the red crescent and the red lion and sun.

Such difficulties are a painful reminder of human prejudice which has to be dealt with as best may be.

As regards the actual abuse of the Red Cross emblem there are of course the obvious instances in warfare of wrongfully using the protective privileges of the Red Cross or of disregarding the agreed-on treatment of Red Cross personnel. These can only be deplored. The protective nature of the Red Cross emblem in war must in the last instance depend on the humanity and probity of those using it.

Some distinction is to be made between the protective function of the Red Cross emblem and its use as indicating that aid is being rendered in necessity, although of course the two functions are closely linked and the prestige of the protective sign is heightened by the general esteem for the work of the Red Cross.

The indiscriminate use of the emblem for commercial purposes lowers its prestige and should be protested against whenever possible, but it is just as important that Red Cross institutions should be careful not to exceed the privileges given them in the use of the sign. The use of the emblem is prohibited for anyone not expressly authorized by the Convention. There is a popular tendency to associate the red cross with everything connected with the fight against disease but this is a misconception of its proper use, and should be so recognized by those who however humane their work may be, do not have the privilege of using the Red Cross designation. Even if the emblem is changed, as has been done in some quarters to a white cross on a red background, exploitation is still being practised indirectly, and furthermore, the Swiss flag itself is being degraded.

The legislation required to enforce the protective clauses of the Convention will have to be national until some kind of international control can be established. That will not be soon, but in the meanwhile there should be recognition of the necessity to preserve the nature of the Red Cross emblem in all its disinterested nobility.

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THE HOXSEY CANCER CLINIC

The U.S. Court of Appeals has recently given judgment prohibiting the distribution through the mails by an alleged cancer clinic of certain liquids for the treatment of cancer. This judgment was a reversal of that given in a lower court, and no pains were taken to disguise the views of the higher court regarding that judgment. "Upon such subjects" they said, (*i.e.*, modern methods of diagnosing and treating cancer) "a Court should not be so blind and deaf as to fail to see, hear and understand the import and effect of such matters of general public knowledge and acceptance, especially where they are established by the overwhelming weight of disinterested testimony."

The defendant in the case was the Hoxsey Cancer Clinic in Dallas, Tex. (Whether "Hoaxsey" would have more accurately expressed the nature of the clinic has not been insisted on!) Mr. Hoxsey after a youth spent in various forms of employ, such as coal mining and writing insurance, began to promote what he called his cancer treatment. His qualifications apparently were simply that his father had been a doctor of veterinary medicine, according to a statement made by his son to the Food and Drug inspectors when they first began their acquaintance with his peculiar labours. His resilience of nature enabled him to survive three convictions for practising medicine without a license in Illinois and a permanent injunction against violating the Iowa State Medical Practice Act. He also seems to have avoided the fate of an associate in his cancer clinic who was sent to a penal institution.

In spite of such trifling interdictions, there still was plenty of room for him to turn around in, and he next appeared in Dallas, Tex., where he opened his Cancer Clinic, although only in a modest way at first. His fee for treatment then was only $300.00 and he had not yet begun to distribute his remedies. As he prospered he moved to more palatial quarters and acquired a medical director in a Dr. Joseph Durkee, an osteopath. Naturally, the fees had to expand as well and $400.00 per patient was considered to be a judicious charge. They came from practically every State in the Union.

No one could criticize the business aspect of this clinic's activities. Durkee testified at the time of the trial that for this fee he examined patients at the rate of 35 to 50 per day. Even allowing for the cost of the cancer medicine (modestly called "the tonic") and various odds and ends of vitamin preparations, laxatives and so on, all handed out in a paper shopping bag after the diagnosis was made, there must have been enough left to pay Mr. Hoxsey's rent and something over.

An investigation of the methods of the Hoxsey Clinic showed that it had all the window dressing, or as much as was necessary to impress the simple minded. A history was taken, with especial stress on previous treatment and whether a biopsy had been taken and if so whether the report was available. Then routine blood and urine examinations were done, followed by an x-ray, which apparently was usually a flat plate only. The Medical Director then made the "diagnosis" on the findings from these exhaustive studies and finally the business manager dealt with the fee and its payment. Mr. Hoxsey was the specialist who was called in if there was any difficulty about arranging for the fee.

There was no secret about the composition of the Hoxsey remedies. One was for treatment externally—an escharotic—and the other was for internal use. The latter was coloured either black, brown or pink, and had varying amounts of vegetable extracts, potassium iodide and sugar and water. Apart from the possible untoward effects of the potassium iodide there was nothing either dangerous or particularly weird in the mixture, but neither was there anything which could cure cancer.

It was on this latter ground that the case was based. The Government was not concerned with the methods of treatment employed by the Hoxsey Clinic. But the Food and Drug Administration *was* concerned when the clinic began distributing drugs which were misbranded, in the sense that they claimed to do what in the light of scientific knowledge they could not be expected to do.

It seems to be a rather roundabout way of checking exploitation of credulity but there it is. If Mr. Hoxsey had confined himself to treating people in his so-called clinic he might have avoided the inconvenience to which he has been subjected. Actually, there is nothing to show that he does not continue to treat those who come to him once he does not send his mixture through the mails. He will not lack clients. The exposure of fake cancer cures never seems to have any lasting effect, judging by the number of those that still flourish. But at least we can continue to put the facts on record so as to answer any inquiries that may be made by the credulous and uninformed.

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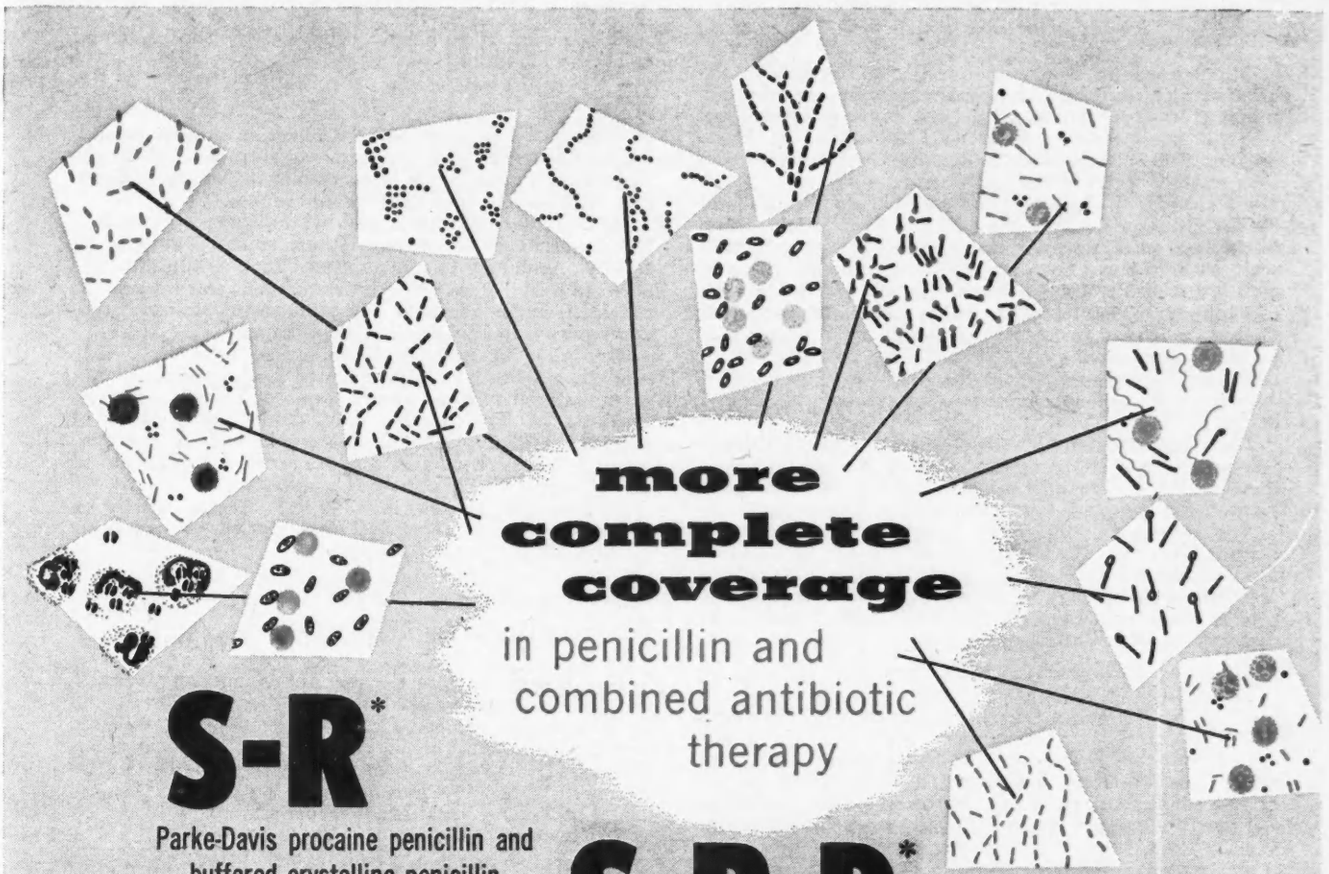
MEDICAL RESEARCH FELLOWSHIPS

The Division of Medical Sciences of the U.S. National Research Council announces the following postdoctoral research fellowships for 1953-1954:

Fellowships in the Medical Sciences.—These awards are designed to offer advanced training in the preclinical sciences, and not to provide practical experience in the clinical field. Applicants with clinical experience who are seeking fellowships with the objective of entering clinical investigation will be expected during the period

(Continued on page 68 of the advertising section)



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*TRADE MARK

(Continued from page 66 of the advertising section)

of appointment to devote themselves to research in the basic medical sciences. The Fellowships are intended for recent graduates who, as a rule, are not more than thirty years of age. Fellows must hold the M.D. or Ph.D. degree. These Rockefeller Fellowships are open to citizens of the United States and Canada.

Fellowships in Radiological Research are administered by the Division for the James Picker Foundation. These fellowships offer research training for recent graduates who, as a rule are not more than 30 years of age, and who are entering upon investigative careers in the field of radiology. The Foundation has expressed particular interest in the support of candidates who propose to carry on research oriented toward diagnostic aspects of radiology. Fellows must hold the M.D. or Ph.D. degree. Appointments are not limited to citizens of the United States.

The Committee on Growth of the Division of Medical Sciences advises the American Cancer Society regarding the award of Fellowships in Cancer Research. Announcement of this program has been published separately.

Applications for 1953-1954 must be postmarked on or before December 10, 1952. Fellowships are awarded in the late winter or early spring. Complete details and application blanks may be obtained from the *Fellowship Office, National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D.C.*

NUTRITION PHOTOGRAPHIC CONTEST

The Nutrition Division of the Department of National Health and Welfare announces a Contest for photographs depicting some phase of nutrition work in Canada. The contest opens October 1 and closes December 31, 1952.

The prizes will be cash awards: first prize $100.00; second prize $50.00. Ten additional prizes of $10.00 each to the best entry, not already a prize winner, from each province. A certificate of award will be presented to each winning entrant.

RULES

The contest is open to all Canadian citizens excluding professional photographers, and employees of the Nutrition Division of the Department of National Health and Welfare and their immediate families.

Any number of black and white glossy prints may be submitted by an entrant. Prints must be at least 8" by 10", mounted or unmounted. Each entry must be accompanied by a properly completed entry blank as provided, or a facsimile thereof, and a release from every person identifiable in the photograph.

The following information should be typed or clearly printed and firmly attached to the back of each photograph entered in the contest: Name of Entrant; address; Province. Subject matter must depict some phase of nutrition work in Canada. This could include nutrition research, education, or a direct nutrition service aimed at improving the health of Canadians.

Address all entries to: Contest Editor, Nutrition Division, Department of National Health and Welfare, Jackson Bldg., Ottawa, Ontario.

CANADIAN HOSPITAL COUNCIL

The Board of Directors of the Canadian Hospital Council has announced the appointment of Dr. Arnold L. Swanson to succeed Dr. L. O. Bradley as executive secretary of the Council and editor of *The Canadian Hospital*. Dr. Swanson, who was Deputy Medical Superintendent of the Provincial Mental Hospital and Crease Clinic of Psychological Medicine at Essondale, B.C., assumed his new duties in Toronto in September.

Dr. Swanson graduated from U.B.C. in 1940, attended McGill University medical school and interned at the Montreal General Hospital. On completion of his medical training he spent two years, 1944-46, with the R.C.A.M.C. In 1948-49 he attended the course in hospital administration given at Northwestern University in Chicago and attained the degree of Master of Hospital Administration. Dr. Swanson spent the summer of 1949 inspecting hospitals for the American College of Surgeons. He then returned to the B.C. Mental Health Services and was shortly promoted to the position of Deputy Medical Superintendent at Essondale. He is a member of the Canadian Medical Association and a nominee of the American College of Hospital Administrators.

ASSOCIATION OF MILITARY SURGEONS

The Association of Military Surgeons of the U.S. is holding its 59th annual meeting in Washington, D.C., on November 17, 18 and 19, 1952. Invitations have been sent to the chiefs of medical services of the Canadian Army, Navy and Air Force. A well arranged and comprehensive scientific program has been arranged with elaborate displays and technical exhibits. Delegates will be decorated with the medal and ribbon of the society and be given honorary membership in the Association.

UROLOGY AWARD

The American Urological Association offers an annual award of $1,000.00 (first prize of $500.00, second prize $300.00 and third prize $200.00) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Hotel Jefferson, St. Louis, Missouri, May 11 to 14, 1953. For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before January 15, 1953.

The Canadian Medical Association Journal

DECEMBER, 1952 • VOL. 67, NO. 6

APPLIED PSYCHIATRY IN GENERAL PRACTICE*

FRANKLIN G. EBAUGH, M.D.,†
Denver, Colorado

TODAY, rather than presenting you with the usual synopsis of psychiatric conditions—a bird's eye view of psychiatry—I wish to do two things: (1) To show you that psychiatry and the medical application of psychological principles can be of tremendous value in your practice of medicine; and (2) to demonstrate that even in primarily psychiatric problems you can play the key rôle in many instances.

More and more we are beginning to recognize that applied medical psychology is a basic science of medicine, as important to the effective practice of clinical medicine as biochemistry, anatomy or general physiology. More and more medical educators are recognizing this, and psychiatric education in medical school consists of much more than a few lectures on dementia præcox, organic reaction types and commitment procedures for the "insane". Much remains to be done to integrate the more useful knowledge we have into the medical student's thinking. An equally important task for the psychiatrist is to put forth some of this material in a usable form for our fellow physicians in non-psychiatric fields who most likely have had only the most fleeting and unsatisfactory exposure to psychiatry in medical school.

Learning how to handle patients is one of the primary requisites of an adequate physician. Primarily a physician is not a salesman, but just like a salesman he must understand and be capable in his handling of people. This is often a rather upsetting idea, and often a threatening one, to the young scientist just going into practice. He is eager to have the world beat a path to his door, begging for the accurate, scientific application of the cool, healing hand. Often he has come to scorn the methods of the older practitioner with his bed-side manner. He vows his practice will include no mis-spent time with what he calls "crocks" and neurotic, healthy or otherwise. If he is in a specialty which is in great demand or in an area without competition, he may complacently and profitably go along high-handedly spreading pearls, but should he be competing against others who have a more mature and helpful understanding of people, he will soon either learn, starve or leave. Knowing how to handle people is not only an essential of good medicine, it is often an economic necessity.

To illustrate this a little further, let us take the example of the hostile patient. One of the most difficult problems we have as physicians is in handling these resentful, angry people. We all want to be liked and most of us need very much to feel we are helping others. A patient who shows anger at us undermines our self-esteem. We may react to this attack with counter attack, call him an ingrate or neurotic to ourselves, and quickly dismiss him with varying degrees of courtesy from our presence. And yet we may be left with the unpleasant feeling we have dismissed a sick person who needs our help, or we may have vague, guilty stirrings suggesting that perhaps it was our fault. We may even fear the harm that a malicious tongue can do to our reputation or practice. Learning to handle such people takes patience and time. It may also take many unpleasant episodes and much self-evaluation before we can handle anger in our patients when it is directed against ourselves. On the other hand, an attempt to find out why the patient is hostile, or to listen to his problems, may allow us not only to know the pleasure of eliminating his anger toward us, but of giving help to a person who obviously needs it. So often the angry person is that way because he is scared, scared of us or of his own illness. He needs help in overcoming his fears just as much as the patently fearful person who appeals to us directly for our help.

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Today, as always, the physician needs to be more than just a therapist for disease, physical or mental. Much help can be given to a family by the family physician and really by nobody else. A very cogent example is the help the family doctor may give a couple who have a defective child. Often we find the parents so overwhelmed with guilty feelings about the child that they are unable to handle the problem wisely for their own, the child's or the best interests of other siblings. Many other examples can be given in which the doctor, armed with practical psychological skills, can do inestimable good for his patients in essentially non-medical fields.

Let us turn again to medical problems to illustrate the value of psychological knowledge in dealing with patients. A few examples will suffice. In patients with cardiac complaints, many will be found having symptoms on a functional, non-organic basis. Rangell[1] has estimated that the majority of patients with cardiac complaints will have no organic disease to be treated. When disease does exist, emotional problems may worsen the symptoms and the prognosis. This is particularly clear in cases of congestive failure, angina, or where a myocardial infarction has occurred. The need to recognize and to help alleviate the anxiety with such difficulties will often pay off in a smoother clinical course. Here the fallacy of "either/or" concept[1]—either organicity or neurosis—is most clear.

Often if the patient can "accept" his illness for what it is, the first successful step in treatment has been taken. The inability of a successful, driving business man to really accept the implications of a myocardial infarction can often lead to premature death or total disability. Many patients are too upset by the implicatiens of our diagnosis to accept it. As physicians it is as important for us to be sure the patient can emotionally understand what we have told him, and accept it, as it is to give the correct pharmacological prescription.

In the fields of physical rehabilitation[2] and tuberculosis this problem is particularly acute. Here the utmost co-operation of the patient for long periods of time is necessary. And even after the acceptance of the disability has taken place, new problems arise. Any chronic illness leads, of necessity, to the patient's becoming very dependent on his doctor. With dependency often come demands, and anger when these demands are not met. Realizing this as a normal concomitant of long-standing illness, the physician will be able to understand, accept and deal with these feelings, instead of regarding the demanding patient as an "ungrateful nuisance".

In the realm of surgery a knowledge of emotional reactions can be valuable both prophylactically and in handling emotional problems when they arise postoperatively. Here again it is necessary for the patient to understand what is likely to be the outcome postoperatively. It behooves the surgeon to be sure the patient really accepts what is to happen, lest he or she awaken a few days postoperatively to the realization that an important part of the anatomy has been removed. Different organs have different importance to us, quite apart from their logical utility. Generally, the more "sexualized" an organ is, the more anxiety will be associated with tampering with it, *e.g.*, the uterus, the breasts, the prostate, etc.[3] In children in particular, careful preparation of the child emotionally will pay-off in terms of fewer anxiety reactions postoperatively. Levi[4] as well as Straker[3] have pointed out the frequency of acute anxiety reactions in children under 3 or 4 who have had operations using general anæsthesia. These reactions, often quite prolonged, consist of generalized anxiety in many situations, nightmares, poor sleep, fear of the dark, and often various phobias. This has led to the recommendation that elective surgery be postponed until after this age. Jackson[5] has outlined the essential necessity of the anæsthesiologist winning a child's real trust before general anæsthesia is given. Using a carefully planned program of getting acquainted with the patient and securing the child's confidence, she reported: (1) elimination of the necessity of using heavy preoperative sedation and thus the elimination of the undesirable side-effects of such; (2) the need for less anæsthetic agent; (3) shortened induction period; (4) the excitement stage was decreased; (5) the operating room was quieter.

In the field of obstetrics there is, as Parks[6] has noted, a historical indoctrination that childbirth is an ordeal, painful and difficult. Its terminology with such words as labour pains, lacerations, forceps, rupture of the membrane, hæmorrhage and abortion are hardly likely to allay apprehension when used by the obste-

trician in the presence of the expectant mother. When the physician can recognize such signs as excessive nausea and vomiting during pregnancy, interest in the morbid details of pregnancy, revulsion at the thought of breast feeding, and demands for complete narcosis as suggestive evidence of rejection of pregnancy, or at least as evidence of severe conflicts surrounding the whole thing, then much can be done to correct it before the child comes.

In no illness is it more important for the patient to have an understanding physician than when afflicted with cancer. It is clear that if we know what cancer means to the patient,[7] what special fears he has about the disease, we are in a much better position to handle him helpfully and to give him real emotional comfort in the remaining months or years of his life. As Shands *et al.*[7] have pointed out, many of us become disturbed by the patient's downhill course and avoid discussing his or her emotional problems. This the patient views as lack of interest or rejection, which increases the feeling of hopelessness. Diligently and helpfully attending the dying carcinoma patient is not an easy task for any of us, yet it is a duty that cannot be shirked even after we can do no more with medicine or surgery.

These are just a few examples of areas in which we can, as physicians, more effectively handle our patients' medical problems by applying common sense principles of medical psychology. These are examples drawn from the positive side. On the other hand, as is implicit in the Hippocratic oath, we wish to practise medicine so as to do as little harm as possible to our patients. We all know of physicians—luckily rare—who seem to enjoy deliberately scaring patients and hurting them psychologically, not to mention physically. Many of us may quite unwittingly harm our patients psychologically through ignorance or just plain carelessness in what is said within the patient's hearing. "Iatrogenic"[11] is the term applied to disorders caused by the physician. Unnecessary examinations, laboratory studies and operations on patients whose complaints are clearly neurotic in origin can fix the symptom and make its future treatment more difficult.

Another practical application of psychiatric knowledge in the general practice of medicine occurs in the diagnosis and treatment of physical disorders showing up initially or most clearly as psychiatric abnormalities. It cannot be emphasized too strongly that the nervous system may act as a "reflector of bodily disease",[8] of pathology elsewhere than in the nervous system. So often when we observe psychiatric symptomatology, we assume immediately that here is a problem for the psychiatrist and refer it as such. Often patients are referred who are suffering from metabolic, endocrinological or other toxic disorders, showing up clinically primarily with nervous system dysfunction.

Islet cell adenomas of the pancreas with symptoms of weakness and fatigue, anxiety, irritability, and in more severe cases with convulsions and delirium, may be mistaken for psychogenic disease. Hyperthyroidism often gives marked emotional instability with distractibility and euphoria, occasionally leading to a delirious reaction. Mild hypothyroidism may produce lethargy, chronic fatigue with slowing of mentation, which can be interpreted as premature ageing or as a depressive reaction. More clear-cut, severe hypothyroidism with myxœdema often leads to psychotic reactions. A case of this sort, diagnosed as paranoid schizophrenia, was recently referred to Colorado Psychopathic Hospital by a competent internist. Psychiatrically she did show some of the characteristics of schizophrenia. However, a careful mental status evaluation, along with careful history, physical and laboratory studies confirmed our initial impression of myxœdema. She has now continued to exist normally without psychological or physiological difficulties on 2 gr. of thyroid a day for over two years. Asher,[9] has reviewed this subject under the captivating title of "Myxœdematous Madness". Emotional disturbances in endocrinological disorders such as Addison's disease and in Cushing's disease are also to be noted. Psychic manifestations from ACTH and cortisone administration are a recent outgrowth of advances in hormone therapy, and should be included in any discussion of endocrinological and metabolic disorders.

Dr. Rundles,[10] in reviewing the neurological lesion associated with pernicious anæmia, has emphasized the frequency of the cerebral manifestations of memory loss and confusion that may be the presenting complaint in this disease. Congestive heart failure and small cerebrovascular accidents, silent strokes, as a cause of psychiatric symptoms are familiar to us all.